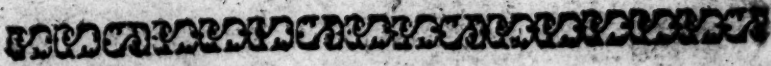
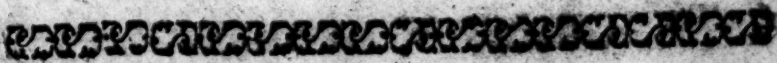


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A
TREATISE
OF THE
DISEASES
OF THE
Horny-Coat of the Eye.



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Horny-Coat of the Eye

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A
TREATISE
OF THE
DISEASES
OF THE
Horny-Coat of the Eye,
AND THE
Various Kinds of CATARACTS.

To which is Prefix'd,
A METHOD, entirely New, of Scarifying
the Eyes for several Disorders.

With REMARKS on the Practice of some
Oculists both at Home and Abroad,

By *BENEDICT DUDDELL,*
Surgeon and Oculist.

L O N D O N:

Printed for JOHN CLARK at the Royal Ex-
change, and sold by J. ROBERTS in Warwick-
Lane. MDCCLXXIX.

19

TREATISE

OF THE

DISEASES

OF THE

Horny-Corn of the Eye



A Method, contriv'd, of Scouring
the Eye for several Disorders

With Remarks on the Practice of some
Oculists both at Home and Abroad.

BY RICHARD DODD, M.D.
Surgeon and Oculist

LONDON:

Printed for John Clark at the Royal Ex-
change, and sold by J. Roberts in West-
minster, M.DCC.LXII.

THE
PREFACE.



ALL Surgeons in my Opinion shou'd be Instructed in every Branch of their Profession. And it is in order to assist those who are Young and unexperient'd, that I publish this little Treatise concerning the Distempers of the Eye; which are often the Subject Matter of our Practice, but little understood by some, who rashly undertake to Cure them.

THE Reason which induc'd me to make these my Study, was the Misfortune of a Poor Man at *Workshop* in *Nottinghamshire*; who, notwithstanding my best Endeavours, lost his Sight; and in consequence, the means of providing for a numerous Family of starving Children. This gave me such a Shock, that I resolv'd to penetrate as far as my Abilities wou'd carry me, into all the Distempers incident to Human Sight.

WITH

WITH this Design, in the Year 1718, I went over to *Paris*, where I met with a very Eminent Oculist; under whom I went through several Courses of the Distempers of the Eye; as I did through all the Parts of Surgery, under other Masters of that Profession. For, tho' I had formerly serv'd my Apprenticeship but four Leagues from *Paris*, I found my self very deficient in several things belonging to my Profession.

I DO not intend to make a secret of any Skill I have gain'd by my Practice, as a *French* Author has done; who, in his Preface, speaking of the Remedies for the Eyes, has these Words, *Si je m'en suis reservé quel qu'un, ce n'est qu'en faveur de mon élève.* For my part I shall have the same regard for all Young Surgeons without exception, as that Author has for his Disciple.

THERE happen'd to fall into my Hands a little Treatise, entitled *An Account of the Mechanism of the Eye*; wherein its Power of refracting the Rays

P R E F A C E.

Rays of Light, and causing them to converge at the *Retina*, is consider'd: With an Endeavour to ascertain the true Place of the *Cataract*, and to shew the good or ill Consequences of a judicious or injudicious Removal of it: Written by Mr. *John Taylor* Surgeon in *Normich*.

As to his Remarks in the Preface, with respect to Surgeons, there is too much Truth and Justice in them, to deserve a Censure. And if the Method he hints at, for the Examination of them, more especially of those who Practise in the Country, were put in use, it wou'd doubtless be of great Benefit to the Publick.

BUT as I apprehend, there are some Mistakes in his Book, as to the Nature and Cure of the Distempers of the Eyes, and I think my self oblig'd to take some notice of 'em. For Instance, *pag.* 30, treating of the *Sclerotis* and the *Cornea*, he writes thus: " They make
 " together one firm Coat, for the use
 " of the other Coats and Humours.
 " This Coat is sometimes diseas'd by a
 " little

“ little white Speck of a Cartilaginous
“ Substance, covering part of, and
“ sometimes the whole *Pupilla*. If
“ this Excreescence is only superficial,
“ it may be removed by an Operati-
“ on in Surgery call'd *Lencotomy*: But
“ if the *Cornea* is thoroughly affected
“ I believe it incurable. This Opera-
“ tion is perform'd in the following
“ Manner, *viz.* I place the Patient
“ in a proper Position, and fixing the
“ *Speculum Oculi* invented for that Pur-
“ pose, in order to keep the Globe
“ without Motion, pare off the Ex-
“ creescence with a small curv'd Knife,
“ leaving as few inequalities as possible;
“ and having prevented an Inflam-
“ mation by proper Repellents, I
“ blow a Powder into the Eye; which,
“ assisted by the Motion of the Eye-
“ lids, smooths off the Inequalities
“ left by the Knife.

I SUPPOSE, what this Gentleman
takes for a Cartilaginous Excreescence,
are *Cicatrices* proceeding from Wounds,
or *Abscesses* of the *Cornea*; which, ac-
cording to their number, occasion Opa-
cities.

P R E F A C E. vij

cities. I have seen seven or eight of these *Cicatrices* betwixt the Blades of that Coat, in proportion to the Depth and Extension of the *Abscesses*.

If the Opacity be superficial, the paring off must hurt the transparent Blades below it. For Nature fills the Vacancy, and in course it must become thicker than it was before. If they have penetrated all the Blades, I grant there is no Remedy. To attempt it were the same thing, as to pretend to take off a Scar, without leaving a Blemish on the Skin.

THERE are several Surgeons in London, who, because they go under the Notion of being Anatomists, think themselves entitled to perform all Operations on the Eyes, without having learnt them from Persons capable of giving them a true Insight into this Master-Piece of Nature. A Gentleman of my Acquaintance, ask'd one of these conceited Anatomists, how he did to know the different Natures of the Distempers of the Eye. His Answer was, that he undertook all,
If

If his Operation succeeded, so much the better ; if not, the Patients cou'd be but Blind, or in danger of being so, as they were before. And thus the Publick suffers for these Gentlemen's Experience.

I HAVE more than once heard this infamous Character of taking away Sight, instead of preserving it, bestow'd on some of our Profession. For, as I make it my Custom, upon meeting with Poor Blind Men to examine their Eyes, in order to find the Nature and Cause of their Blindness, they have told me, on their own accord, the Names of those unlucky Persons who had reduced them to this deplorable Condition. I mention these Things, to forewarn Young Surgeons that they be not too rash in Operating, before they have well examin'd the Case. For an Eye is soon lost, and they in consequence will lose their Reputation, if their want of Skill occasions the Misfortune.



A
TREATISE
OF THE

Distempers of the Horny
Coat of the Eye.

CH A P. I.

*Of the EYE in General, and of the Parts
that surround the Globe.*



S the Distempers of the Eye,
viz. those of the *Horny Coat*,
and the *Cataract*, are the Sub-
ject of this Treatise, it seems
necessary to give first an Idea
of the Structure of the Eye, and of the
Use of its Parts. These I shall distinguish
B into

into two Classes. To the first Class I reduce those which encompass the *Globe* of the Eye; to the Second those that compound the Parts encompassing the *Globe*, which are the Bones that form the *Orbit*, the *Lids*, the *Glandula*, the *Caruncula Lacrymalis*, and the *Fat*; and to these may be added the *Nasal Pipe*. Those that compass the *Globe*, are the *Muscles*, their common and proper *Membrane*, their *Humours*, or the transparent Bodies enclosed in them.

S E C T. I.

THE *Orbit* is a bony Cavity design'd for the Eye: It hath a very large opening, and its Fund is very narrow, with a Hole in it called the *Optick Hole*. It is composed of seven Bones: The *Os Coronale* makes the superior Part, the *Os Maxillare* and the *Os Mali* make the inferior, and part of the Sides. That part of the *Maxillare*, which rises toward the great Angle of the Eye, with the *Os Unguis*, forms the Cavity, where the *Lacrymal Bag* is seated. Part of the *Os Planum* makes the hinder and inner lateral part of that Side, next to the great Angle; and a little Part of the *Os Palati* makes the inferior and furthest back part of the Fund of the *Orbit*.

THE *Lids*, which serve to cover the forepart of the *Globe* of the Eye, are both com-

composed of Skin; are border'd with a *Cartilage* called *Tarse*, and resemble the Segments of a Circle; they have a Row of Hairs at their outward Edges called *Cilia*; and *Muscles* for their Motion. The Skin of the Lids is the loosest of any part of the Body. The *Cartilage* of the upper Lid is larger than the lower, having the Breadth of about four lines in its Middle; and diminishes by degrees towards the Angles; but is narrower towards the Nose than towards the Temple.

THE *Cartilage* of the under Lid is about two lines large, and keeps its largeness in almost all its length. The thickness of the *Cartilages* increase, as they draw toward the Edges of the Lids. The Union of the *Cartilages* towards the Nose is called the great Angle, that toward the Temple, the little Angle.

THE Lids have two *Muscles*, one proper and one common; the first belongs to the upper Lid, and serves to lift it up; the Second is common to both Lids, and its use is to shut them. The first is called *Attolens rectus* of the upper Lid, which takes its rise from the Fund of the Orbit at the upper part of the *Optick Hole*, and grows larger as it goes along, and is inserted by a large Tendon to the *Cartilage* of the upper Lid. The Second is composed of *Fibres* half circular, which are fasten'd to

the Circumference of the *Orbit*, and to a pretty strong Tendon at the great Angle of the Eye, and to the two Lids, which they cover even to their *Cartilages*, where they end; so that by their agitation, they shut the Eye by drawing the Lids together. The insides of the Lids are cover'd with a *Membrane* which is adherent to their Edges, and covers afterwards the Forepart of the Globe, and ends at the Edge of the transparent *Cornea*: 'Tis likewise fastned to the Edge of the *Orbit*; for which reason it has been look'd upon to be a continuity of the *Pericranium*. This *Membrane* is common to the Globe and to the Lids, and is known under the Name of the *Conjunctiva*: upon examining it with care, one finds it cover'd with a second *Membrane* which is finer than the first. It is a sort of *Epidermis* or *Cuticula*, which appears insensibly to extend it self over the transparent *Cornea*: It is very easily perceived after Scarifying. Behind the *Conjunctiva* there appears another *Membrane* formed by the Union of the *Aponeurosis* of the flat Tendons of the *Muscles*, of which we shall speak hereafter. It is chiefly those that make the White of the Eye.

THERE is, in the inward Edge of each Lid, at the Place where they touch when shut, a Row of small Pipes, which appear like little Holes, and are the Extremities
of

of several little Excretory Channels, which furnish a Humour, that by its Unctuousity hindering the Tears from falling down the Cheeks, conveys them towards the Nose, for to pass through Pipes, of which we shall speak hereafter. When this Humour becomes thick, it makes what is call'd *Wax* or *Gumminefs*.

THE *Glandula Lacrymalis* is seated in the Entrance of the superior Part of the Orbit, towards the little Angle, and divided into several Lobes, which send out Excretory Channels, opening at certain Distances all along the inward Membrane of the Upper Lid, and furnishing continually a Humour (commonly called *Tears*) to moisten the anterior Part of the Eye, and facilitate the Motion of the Lids, as well as to entertain the Transparency of the *Cornea*. The Residue of the Tears is received through two little Holes, seated in the inward Edge of the Cartilage of each Lid, about three Lines distance from the great Angle: They are called *Puncta Lacrymalia*, and resemble the End of two little Trumpets, in the Form of Pipes, re-uniting towards the Nose into one common Conduit, which is very short: That Conduit opens into a little longish Bag, called *The Lacrymal Bag*, seated in a Gutter, form'd by the meeting of the *Os Unguis*, and the *Os Maxillare*: This Bag is open to a membranous

Conduit, called *The Lacrymal Conduit*, which terminates by a sort of Funnel in the inferior Part of the Nostrils, below the inferior Blades of the Nose, and above the Vault of the Palate. The *Conduit* which I have been speaking of, is inclosed in a bony Channel, called *The Nasal Channel*, which is a Hollow in the *Os Maxillare*, and cover'd within by the *Os Unguis*. It is through this Place the *Lacrymal Serosity* received by the *Puncta Lacrymalia*, empties itself into the Bag above-mention'd; from whence it issues by the Nose, or goes away behind the Palate into the *Pharinx*, where it mixes with the *Saliva*.

THERE appears, at the great Angle of the Eye, a little reddish Button, commonly called *Caruncula Lacrymalis*; the Use of which is to guide the Tears into the *Puncta Lacrymalia*. This same Body, being examined closely, appears to be glandulous, and filtrates a Humour almost like that of the Ciliary Glands. The Lids, in covering one Part of the *Globe*, secure it against any Impression of outward Bodies, to which the Eye-lashes contribute a great deal; as likewise, by their Movement, they diffuse equally the Serosity of the *Lacrymal Glands* over the *Cornea*, for the entertaining of its Transparency; and besides, they direct the remainder of this Serosity into the *Puncta Lacrymalia*. The *Puncta Lacrymalia*

malia have each a *Sphinctre*; which, by its Contraction, draws the Tears toward the great Angle. For without this Contraction of those *Muscles* the Tears would fall down the Cheeks. Hence we see, that when a Person lies on his Side, with his Eyes open; from that Eye which is next to the Pillow (if it be kept open for some Time) the Tears fall out toward the Temple: But the Winking, or Twinkling of the Eyes, causes those two little Muscles to contract, which draws the Tears toward the Nose through the *Puncta Lacrymalia*. The Lashes serve to qualify the too fierce Impression of the Rays of an over-splendid Light. The Fat, with which the Eye is lined in some Parts, hinders it from being hurt by the Hardness of the *Orbit*, and helps to maintain it in a convenient Situation, to facilitate the Motion.

S E C T. II.

The Muscles of the Eye,

THE *Globe* of the *Eye* is moved by six *Muscles*, four strait and two oblique. The first receive divers Names, because of their different Use. The first of the four strait *Muscles* is called *Attollens* or *Superbus*; the second, *Deprimens* or *Humilis*, because it pulls down the Eye: The third is called *Adductor*, because it draws the Eye towards

the Nose. The fourth *Abductor*, it draws the Eye towards the Temple. They rise in the Fund of the *Orbit* at the Circumference of the Hole thro' which the Optick Nerve passes; they advance a little beyond the middle of the Globe, where they are inserted by their large flat Tendon, which unites all together betwixt the *Cornea Opake*, and the *Conjunctiva*, and cover the rest of the *Globe* by advancing as far as the *Cornea Transparent* where they end: Of the two oblique *Muscles*, one is big, and the other little. The first is the *Obliquus Major*, which takes its Rise from the Fund of the *Orbit*, by the Side of the *Adductor Muscle*, and passes obliquely towards the great Angle; in the upper Part of which, near the Brink, there is a Cartilaginous Ring through which it passes its round Tendon; from whence reverting backward toward the little Angle, it is inserted by the Side of the *Abductor Muscle*. The *Obliquus Minor* rises from the Lower Side of the *Orbit*, by the Side of the *Nasal Conduit*, and ascending obliquely towards the little Angle, passes under the *Globe* of the *Eye*, and there meets with the hinder Part of the Tendon of the *Obliquus Major*.

THE Use of the strait *Muscles* are signify'd by the different Names which have been given them: When all these *Muscles* move at a Time, and equally alike, they keep the *Globe* of the *Eye* in an equal Balance;

lance; but if two of the neighbouring *Muscles* move together, then they give an oblique Cast to the Eye. If the *Superbus* and the *Adductor* act together, they turn the Eye obliquely upward, and a little towards the great Angle, and so of the others; if those *Muscles* act successively, they give a Sort of Circular Motion to the *Globe*. As to the oblique *Muscles*, there have been different Opinions concerning the Use of them: The best way, in my Opinion, is to follow the Direction of their Fibres. When these *Muscles* act together, they bring the *Globe* directly outward; but when the great Oblique moves alone, it gives the Eye an oblique Movement downwards; and when the little Oblique acts, it draws the Eye obliquely upwards.

S E C T. III.

Of the Globe of the Eye, and its Parts.

THE Membranes of the Eye are commonly distinguish'd into Common and Proper: We call Common, not only those which join the *Globe* to the Lids, and have the Name of *Conjunctiva*, as well as the Tendons of the four strait *Muscles*, which, as I have said, form the White of the Eye; but also those that cover all the Humours. The Name of Proper is given to them that cover each Humour in particular.

THE

THE first of the Membranes of the *Globe* is called *Cornea*, by reason of its Consistence. This Membrane incloses all the Parts which compose the *Globe*. The Fore-part is *Transparent*, and all the rest *Opake*; for which reason the middle of its anterior Part is called *Cornea Transparens*, and the rest of its Extent *Cornea Opake*, or *Sclerotica*; the Thickness of which diminishes by degrees, as it approaches to the transparent Part. The Convexity of this Part bears more out than the rest of the *Globe*: One may divide both the one and the other Portion of this Membrane into several *Parallel Laminae*. This Membrane is also adherent by its Back-part to the Optick Nerve, which we shall speak of hereafter. It appears to be one Continuation, and, in the rest of its Extent, is tyed at distant Spaces to the *Choroides* by Blood-Vessels. The second Membrane is known in general under the Name of *Uvea*. It may be distinguish'd into two Parts; the most considerable Lines, all the inward Surface of the *Sclerotis*, to which it adheres at the Place of its Union with the transparent *Cornea* by several Fibres, which appear tendinous, and form a Sort of narrow Circular Band called *Ligamentum Ciliare*. This Part I call *Choroides*, as several Anatomists do. The second composes the colour'd Part, which appears through the transparent *Cornea*, and is called *Iris*; in the

the middle of which is a round Hole, through which appears a little black Speck, called *The Pupil*, or *Sight of the Eye*.

THE *Choroides* may be divided into two Principal Blades, from the Optick Nerve as far as the Ciliary Fibres of the *Arachnoides*. The inward Blade produces, at the Place of those Fibres, beaming and waving Folds, in form of a Star, which may be called *Ciliary Productions*, because they have some Resemblance to the *Cilia*, or Eye-lashes. Those Foldings or Extensions are full of very fine Net-work, made by the *Capillary-Vessels*, which come from those of the *Choroides*; of which we shall take Notice hereafter, when we come to speak of the Nourishment of the transparent Bodies. The inward Blade is lined on the Inside, as the Exterior Blade is on the Outside, with a black Velvet, as well as the Back-part of the *Iris*: Some have taken this Velvet for a Membrane. The second Portion, or the *Iris*, is thicker than the first, and is garnished with fleshy Fibres disposed in the Manner of Rays. Those Fibres are like so many *Muscles*, which are very much strengthen'd by their Adherency to the *Sclerotis*. They come from the great Circumference of the *Iris*, and end towards the Hole of the *Pupil*, where they meet with a circular narrow *Muscle*, of which the little Circumference makes the *Pupil*, which is dilated by means

means of the beaming or streight *Fibres*, and contracted by the Circular: There is an Interval or Space betwixt the *Iris* and the transparent *Cornea*, which is called the outward Chamber; and another behind the *Iris*, which is called the inward Chamber. These two Spaces inclose what we call the *Aqueous Humour*, and for this reason they are called the *Watry Chambers*.

THE third *Membrane* called *Retina*, is a production of the *Optick Nerve*. The two *Optick Nerves* take their rise from the eminence of the Brain called the *Crura* of the *Medulla Oblongata*, or Beds of the *Optick Nerves*, from whence they advance forwards, and unite, below the Saddle of the *Os Sphenoides*, hard by the Funnel; then, separating again, pass through the *Optick Holes*, and proceed one to each Eye; where they pierce the Back-part of the *Sclerotis*. The Body of each *Optick Nerve* is cover'd with the *Dura* and *Pia Mater*: the former encloses it like a Sheath, which is join'd to the *Sclerotis* without producing of it. The *Pia Mater* form little Cells at some distance which contain a sort of Marrow like that of the Brain: The *Optick Nerve*, upon entring the Eye is straitned as it were and forms a little whitish Button; from the Circumference of which the *Retina* takes its rise, which covers the inward Surface of the *Choroides* as far as the

the Ciliar Circle, where it seems to end. It appears to be a whitish *Matter*, and almost transparent; and has several Vessels, as we shall shew hereafter. The transparent Bodies of the Globe of the Eye, commonly called Humours, are three: The *Vitreous*, the *Crystalline*, and the *Aqueous*. The *Vitreous* Body is immediately compass'd with the *Retina*; which is in nature of a Mould to the greatest part of its Surface; whereof the Fore-part is hollow'd like the Bezil of a Ring, to lodge the *Crystalline*. The *Vitreous* Body is composed of several *Membranous Pellicles*, very fine and transparent; which are so rang'd together, that they form a Number of little Cells, filled with a Humour almost like the white of an Egg. Moreover, the *Vitreous* Body is cover'd with a very fine *Membrane*, which adheres to the *Retina*, at the Place of the Ciliar Circle, where one sees black Rays all round the *Crystalline*; which are Cavities, wherein the ciliar Productions already mention'd are enclos'd; and which retain the Black Velvet of those Productions; after they have been off by separating the *Choroïdes*. This *Membrane* the *Arachnoïdes* seems to divide into two Blades: one of which covers the Fore-part and the other the Hind-part of the *Crystalline*, and keeps it enclosed in the *Vitreous* Humour. Before the *Arachnoïdes* is taken
2 off,

off, by pressing on the ciliar Fibres, one may perceive them to take their rise from the *Membranous Pellicles* of the *Vitreous Humour*; and they appear to be inserted in the *Arachnoïdes*; or in my Opinion, their Extensions form the *Arachnoïdes*.

The *Crystalline* is convex on both Sides, resembling two unequal Segments of Spheres; but its greatest Convexity is on the back Part; which makes a small Cavity in the *Vitreous Humour*, in which it lies: It is composed of several vesicular Scales very transparent, rang'd one upon another, almost like the Skins of an Onion.

THE *Crystalline* is placed betwixt the Scales of the *Membrane* of the *Vitreous Humour*. The outward Scale (called *Arachnoïdes*, or *Aranea*) is plac'd in the Middle of the Fore-part of the *Vitreous Humour*, opposite to the Hole of the *Pupil*, at a little distance from the *Iris*, forming by that Interval, the back Chamber of the *Aqueous Humour*, as we have said; and conjointly with the *Vitreous Humour*, filling almost all the Cavity of the Globe of the Eye. The *Aqueous Humour* is a Serosity that is thin, and of very volatile Parts, for it will not freeze in the greatest Frost, and fills exactly the two Chambers, which have a Communication by the *Pupil*; the inward Chamber is not so large as the outward.

S E C T. IV.

Of the Nerves distributed to all the Parts of the Eye.

T H E exterior Parts of the Eye, *viz.* the Skin of the upper Lid, the upper Part of the *Orbicular Muscle*, the *Lacrymal Gland*, and the *Lacrymal Bag*; receive their *Nerves* from the first Branch of the fifth Pair. It enters the *Orbit* by the *Sphenoidal Slit*; where it divides into three Parts, *viz.* one Superior, which passes over the Eye, to get to the Eyebrow-hole in the inward Edge of the *Orbit*, and comes out the thickness of a Crown above it: But many times, instead of a Hole, where this Branch comes out of the *Orbit*, there is only a Hollow with a *Ligament* in the Nature of a little Pully: It is there distributed not only to the Skin, and the superior Part of the *Orbicular Muscle*, but also to the Forehead, and its *Muscles*.

O F the two other Branches, one is on the inside, and the other on the outside: The inward Branch turns obliquely toward the great Angle of the Eye, and, in its way, throws out a little Thread, which re-enters into the *Cranium* by a little Hole called the inward *Orbiter*, then passes through the *Os Ethmoides*, and is distributed
by

by several small Filaments, into the *Pituitous Membrane* of the Nose; afterwards the Branch continues its road towards the great Angle, to distribute it self at the *Lacrymal Bag*, to the neighbouring parts of the *Orbicular Muscle* and to the Skin: This Branch gives likewise another little *Nerve* that communicates with the *Motorii* of the Eye, so as to form a little *Ganglion*, of which I shall speak hereafter. The outward Branch of the *Optalmick Nerve* throws it self towards the little Angle, branches out in the *Glandula Lacrymalis*, and supplies the neighbouring Parts: The external Part of the Eye receives also *Nerves* from the second Branch of the fifth Pair. This Branch, which is called *Maxillaris Superior*, comes out of the *Cranium* by a particular Hole of the same Name, and gives immediately a little String, which pierces the *Osmali*, to distribute it self to the neighbouring Part of the *Orbicular Muscle*, and to the Skin; it throws out also another Branch, which, going down, distributes itself to the *Dentes Molares*, and to the back part of the Palate: Afterwards this Branch insinuates itself into the Bony Channel, which is in the lower Part of the *Orbit*; and, having furnished *Nerves* to the *Sinus Maxillares*, and to the Teeth, it goes through the Exterior *Orbicular Hole*, under the *Orbicular Muscle*, and communi-

cates

cates with some of the little threads of the hard Portion of the *Auditory Nerve*.

THE *Muscles* of the Eye have their *Nerves* from the third, fourth and sixth Pair, commonly called *Pathetick*: The sixth, which is the Origin of the intercostal *Nerve*, is only for the *Abductor Muscle* of the Eye.

THE other *Muscles* have their *Nerves* from the third Pair, which the *Anatomists* call *Motorii*: This Pair, upon entering into the *Orbit*, divides into four Branches; one for the *Attollens Oculi* which furnishes the *Raiser* of the upper Lid, one for the *Deprimens*, one for the *Adductor*, and one for the little *Oblique*. Besides this Division, it gives another Branch, which communicates with the little *Nerve* of the *Ophthalmick* Branch, as we have said before; and forms, with it, a little *Lenticular Ganglion*: This *Ganglion* produces several little *Nervous Threads*, which throw themselves all round the *Optick Nerve*, pierce the *Scleroticis*, and slide betwixt this *Membrane* and the *Choroides*, and then distribute themselves to the *Iris*; whereof each one, in passing over the *Choroides*, furnishes it with little *Nervous Threads*, which there seem to spring out, much in the same Manner as the *Cutaneous Nerves* end in the Skin.

AFTER that each *Nervous Thread* has furnished the *Choroides* with the little *Threads* of which we have been speaking,
 G they

they continue their Road towards the *Iris*, where they divide again into two *Threads*; of which one ends at the *Ciliar Circle*, and the other at the spreading *Muscles* of the *Iris*.

S E C T. V.

Of the Distribution of the Blood Vessels, which furnish the Membranes with Nourishment, and maintain the transparent Bodies of the Globe of the Eye.

THE *Arteries*, called *Carotides*, furnish each Eye with Branches, whereof the Number is not always the same, which pass through the *Sclerotis*, chiefly at the back Part of it; and, having furnished Vessels for its Nourishment, pass through it by several little Branches, which are distributed to the *Choroides*; and of which the principal advance almost directly betwixt the Scales of this *Membrane*, to the *Iris*: These little Branches form, by their concurrence here and there in the Duplication of the *Iris*, an *Arterial Circle*, which is not smooth, but plaited here and there both within and without. The Fore-part of the *Arterial Circle* gives a Number of Capillary Vessels to the *Iris*, and to its *Muscles*: It furnishes again an infinity of very fine short Vessels, which terminate at the exterior Part of the Circumference of the

the *Uvea*, by the Edge of the *Cornea*, and open immediately in the outward Chamber, to furnish the *Aqueous Humour*, according to the Opinion of Mr. Hovius, to whom we owe the Discovery. The back Part of the *Arterial Circle* produces principally the *Vasculous Tissue*, which makes the Ciliar Productions, with part of the inward Blade of the *Choroïdes*, which helps to strengthen it, vulgarly call'd *Processus*, and gives imperceptible Vessels to the Ciliar Circle or Ligament. The Ramifications of the great Branches which have pierc'd the *Sclerotis* are distributed into the Blades of the *Choroïdes*, in the manner of half Circular Lines heap'd together, and mixt one with another, and there produce the Black Velvet which colours its inward Surface, and that of the *Uvea*: they give it also to the *Retina*, and, having traversed it, cast forth a Number of very fine Capillary Vessels, which maintain the *Vitreous Humour*, and its *Membranes*: The *Retina* has likewise other Vessels, the Trunk of which comes out of the *Optick Nerve*.

S E C T. VI.

Of the Vessels, which carry back the Superfluity of the Blood and Liquors, which have served the Membranes, and transparent Bodies of the Globe of the Eye.

THE Superfluity of the Nourishment of all these Parts returns thorough little Veins fitted to each; which are reunited, on both Sides, in the Duplicature of the *Choroides*, in little Trunks that run into the *Sclerotis*, and having receiv'd several Capillary Veins, traverse it from the inside to the outside, and are reunited at the Jugulary; the *Aqueous Humour*, being poured immediately into the outward Chamber by particular Arterial Openings, finds again particular Vessels in the inward Chamber, toward the Circumference of the inward Surface of the *Uvea*, which carry it back into the Blood Vessels; so that as fast as this Humour enters into the Eye by the Vessels which bring it, it finds others that give it Passage out of the Eye; and, at the same Time facilitates the Course of the Blood into the Capillary Veins, according to Mr. Hovius. This Author hath also discover'd particular Vessels for the Nourishment of the transparent *Cornea*, which come from those of the *Lacrymal Gland*,

Gland, and from the *Fat* and *Muscles*; and, sliding into the *Tunica Conjunctiva*, creep in betwixt the Scales of the *Horny Coat*: The residue of this nourishing Juice returns, in part, by the like Vessels proportioned to meet the Veins; and partly sweats out through the Pores of the exterior Surface of the *Horny Coat*, in order to cleanse its Surface, and keep it smooth.

'Tis observ'd, that, if a Human Eye be taken out of its *Orbit*, and press'd a little, one may see ouze through the Pores of the *Horny Coat* a great Number of little Drops which appear like Dew upon the exterior Surface of that *Membrane*.

SOME are of Opinion, that the *Aqueous Humour* is produced in the Eye by a sort of Transudation through the *Vitreous* and *CrySTALLINE* Humours; and that it is nothing else but the finest and most limpid Portion of the Juice that nourishes its transparent Bodies; which, having filled the Spaces betwixt the *CrySTALLINE* and the transparent *Cornea*, escapes through the Pores of that *Membrane*, to make place for the Humour that is produc'd afresh: And this will appear the more credible, if it be consider'd that the anterior Part of the *Vitreous Humour* encloses always in its Cells an *Aqueous Humour*.



C H A P. II.

*Of the Distempers of the Horny Coat
of the Eye, with the Manner of ma-
king the Scarificator, and the Method
of Scarifying.*

S E C T. I.

How to make the Scarificator.

TAKE about twenty five Beards of Barley, placing the upper Ends downward; break them off about three quarters of an Inch long; tye them from the middle down to your Fingers, and this makes them a little Brush.

THERE is another Instrument, which I use sometimes, made of the Beards of Dog Grass: This grows like wild Rye; some call it *Ægilops*, because the Ancients look'd upon it to be a Specifick Remedy for that Disease call'd *Ægilops*: They are of a finer Nature, and make a smother Scarificator than the Barley; but the Barley are of stiffer Substance, and properer, where

where there is a *Gangrene* or an *Oedematous* Tumour on the *Conjunctiva*.

If you scarify the right Eye, you open the Eye-Lids with your left Finger and Thumb, and Scarify with your right: If it is the left Eye, you open the Lids with your right Finger and Thumb, and Scarify with your left: After you have turned the Eye-lids, you scrape twice a place on the Eye-lids, then on the *Conjunctiva*, where you find the Vessels much extended; you may give four or five Scrapes, taking care that you do not scratch the *Horny Coat*, lest those little scratches shou'd become Cicatrices: For the greater Security, it may be proper to hold the Head, and Hands sometimes: A little piece of the Instrument may possibly break in the Operation: Though you do not perceive it, the Patient will inform you by complaining of a Pain on the inside of the Lids; and, in this Case, you must turn the Eye-lids with your Finger and Thumb, and take it out. When you have done Scarifying, you take off the Blood that sticks to the Eye-lids, and then wash the Eye with a Rag dipp'd in warm Water; Every time that you wash, you must begin next to the Nose, and wash all along the Lids to the Temple; you must wipe but once, before you dip again; then wash again according as you see Occasion, sometimes with

hardly any Intermission. I have taken off a violent *Ophthalmy* by washing from Morning to Night: Care must be taken to have warm Water always ready, to see them wash, and to have every thing in Order.

THIS Operation is as necessary to Oculists, as bleeding is to Surgeons: It draws Blood and Spirits to the Parts, and evacuates, where there is too great a Quantity.

A MAN came to me with an *Ophthalmy*, and an Inflammation on the *Horny-coat* of his right Eye, and a violent Pain all over the Eye: He thought something had fallen into his Eye, from the gritty pricking Pain he felt; and desired me to take out the Mote, as he thought it, and to do any thing to give him ease. After I had examined the Eye, I found it was a Rupture of some of the Capillary Vessels, which he took for the grittiness in his Eye: The Pain was occasion'd from a too great Tension of the Vessels: By the breaking of the Vessels, and Evacuation of the Blood, all the Pain was remov'd: I Scarified him on the *Conjunctiva*, and the inside of the Lids, and ordered him to wash his Eye with warm Water, and to apply the Pulp of a roasted Apple at Night: Thus he was perfectly Cured at one Scarifying.

I HAVE Cur'd a great many *Ophthalmies* with Inflammations on the *Horny-coat*, with

with once scarifying, taken in hand at their first coming; some of them are so violent, that the Pain is inexpressible; and, unless speedy Relief be given, the Persons soon lose their Eyes. In Inflammations of the Eyes, where the *Horny-coat* is here and there opake, and there is danger of *Abscesses* in it, you must endeavour, by all Means, to hinder the little Solutions from coming to *Abscesses*; for *Abscesses*, that digest in the *Horny-coat*, make such Ravage by dividing and tearing the Blades, that it is impossible to retrieve it from the great Opacity of the *Cicatrices*.

You ought to put every Thing in Motion, by bleeding, blistering, scarifying, and fomenting; and to bleed in the *Artery* of the Temple, which is to be repeated as there is occasion. The washing with Water must be repeated almost without Intermision; for that opens the Pores, and helps Perspiration of the Parts.

S E C T. II.

Of an Inflammation of the Cornea, and an Oedema on the Conjunctiva.

AN Inflammation on the *Conjunctiva* extends it to the Thickness of a Crown; which so weakens the Parts, that they entirely lose their

their Springs; and a Gangrene will follow, if proper Means be not used.

THIS was the Case of Mr. *Dodd*, a Stay-maker in *Great Wild-street*, *London*, about thirty six Years of Age: He could not see to distinguish any Thing, and had been in this Condition for fifteen Days; his Eye look'd very frightful; he had a Pain in his Head, and the Temple next the Eye.

HE had been blooded before I went to him, and had used all the Means that were thought proper for that Distemper. I began with scarifying on the Insides of the Eye-lids, and the *Conjunctiva*. I made him wash his Eye with warm Water, and it began to discharge considerably from the Part that I had broken; he apply'd the Pulp of a roasted Apple at Night; the next Day he kept washing his Eyes with a warm Decoction of *Hyssop*; the third Day I scarify'd the *Conjunctiva*, and Inside of the Lids; the Day after the second scarifying, the *Oedema* was almost gone off from the *Conjunctiva*; his Sight began to clear by the Opacity's going off; the sixth Day I scarify'd again; he continued washing, and apply'd a roasted Apple, and two Grains of *Camphor* mix'd with the Apple, to rarify, and give a Fluidity to the Juices in the Parts; on the eighth Day he saw pretty well: The Inflammation was almost gone off. I scarify'd no more than three Times; but I order'd him

him to continue washing his Eye, and applying a roasted Apple at Night, and at fifteen Days end he saw perfectly well.

S E C T. III.

Of an *ALBUGO*.

ALBUGO is a white Speck, sometimes covering part of the *Horny-coat*, and sometimes all of it, with a thick clammy Matter betwixt the outward Blades of it, and that fine Membrane with which 'tis cover'd. It obstructs the Pores, and makes an Opacity.

THERE is always an Inflammation on the *Conjunctiva*, and Inside of the Lids. That fine Membrane which covers the *Horny-coat*, covers also the *Conjunctiva*, and lines the Inside of the Lids, which makes it one Continuity.

IN the Year 1721, I was sent for by Mrs. Butler, who had an *Albugo* all over the *Horny-coat* of her Right Eye, occasion'd by some Lime that was thrown into it. The Lime had excoriated the Eye-lids; the Parts being raw, the little Capillary Fibrous Hooks interlaced one into the other, and then cicatriz'd; so that the Ends of the Eye-lids were joined together, from the greater *Canthus*, a little beyond the *Lacrymal Points*.

I FIRST separated the Parts that were joined with a Lancet : The Lime, by stopping the exterior Pores, having occasion'd an Opacity from the Thickening of the Juices. The next Day, in order to clear the *Horny-coat*, I scarified the Inside of the Lids, and the Lower Part of the *Conjunctiva*, and evacuated about half a Spoonful of Blood : I order'd her to wash her Eye with warm Water all the Day long, and, at Night to apply the Pulp of a roasted Apple; the next Day she continued washing all Day.

THOSE Parts, that I had broke by scarifying, began to make a Discharge ; the next Day I scarify'd again, and made her continue to wash, and apply the roasted Apple at Night : The Day following I found the *Horny-coat* began to clear by the discharging of the Matter ; I made her continue washing, and allow'd three Days betwixt the second and third Scarifying ; her Eye grew considerably clearer, and she could distinguish any Thing. Then I dress'd it with Oil of Eggs, dipping a Feather in it stripp'd on each Side, except a little at the Extremity. I open'd the Lids with my Finger and Thumb, and kept them open, after I put the Oil on, half a Minute ; then I let them close a while ; then open'd them again, and dipp'd the Feather in the Oil, and put it on the *Horny-coat*, and kept the
Lids

Lids open as before, to hinder the Tears from washing the Oil off from the Coat too soon; then I made a Defensive of half a Pint of Rose-water, with two Ounces of Alum dissolv'd in it; two Whites of Eggs, ten Grains of *Saccharum Saturni*, all beaten together; dipp'd little Compresses in it, apply'd them on the Lids, bound them with a Cloth that came round the Head, and renew'd the Compresses every three Hours; otherwise it would have dried and hurt the Eye. I continu'd this Method for about a Week, that is, with the Oil of Eggs, and the Defensive. The Woman saw perfectly well, and continues well.

S E C T. IV.

Of Abscesses of the Horny-Coat.

ABSCESSES of this Coat are Solutions of the Continuity of their Parts. 'Tis generally a Pus, that is collected betwixt the Parts where the Solutions were made: Some are Solutions of part of the Continuity, and some of the Whole, according to their Bigness: Sometimes I have seen five on the *Horny-coat*, all at one time, at a Distance one from the other, and Solution of some of their Parts here and there, because they did not appear with great Eminencies in their kind: And that is my Reason of thinking,

thinking, that there was not a Solution of all; for a Solution of all the Parts always has Eminences, which are apparent, according to their Bigness. Those *Abscesses* are of a whitish Colour, but not so white as an *Albugo*; yet make a greater Solution of the Pores than *Albugo's*, and that makes the Opacity the greater. When the Abscess lies betwixt the outward Blades of the Coat, there is not so much Danger as when it lies in the inward: When you find the Abscess in the outward Blades, it begins with a whitish Speck superficially: When it has been there about three Days, that which is of a subtile corroding Nature rises in an Eminence; the Eminence increasing, causes a violent Inflammation on the *Conjunctiva*, and Pain of the Head. If this Matter is not let out, it will corrode and sap all the Blades of the *Horny-coat*. When the Abscesses are betwixt the inward Blades, they begin with a yellowish Speck, and augment by degrees in Bulk, unless their Progress can be stopt by Revulsions, as bleeding, blistering, and scarifying; the Pus will break through the inward Blades, and fall into the outward Chamber of the Eye, and lodge betwixt the *Iris* and *Cornea*.

THIS is a sort of *Hypopyon*, that is, when the Matter falls into the outward Chamber, and must be treated the same Way;

Way, which I shall shew, when I come to treat of the *Hypopyon*.

Mr. St. Yves, in his *Treatise of Eyes*, p. 222. says, "When the *Abscess* of the *Horny-coat* is in the middle of the Thickness of that Coat, and grows larger to the Point, so as to almost cover all the Transparency of that Membrane, it makes that which is call'd *Hypopyon*; but, in case this *Abscess* extend not so far, and it break on the Inside of the Eye, and that the Pus fall in the outward Chamber betwixt the *Iris* and the *Cornea*, it makes a Gathering in form of a Speck, which has the Figure of a Half-Moon, like to that which appears at the Bottom of our Nails, and is called *Onyx*". What Mr. St. Yves calls *Onyx*, I call *Hypopyon*; and what he calls *Hypopyon*, I call *Abscess of Cornea*.

I HAVE seen *Abscesses* in the inward Blades of the Coat, and they have broke within; the outward Blades being too weak, have swell'd out to the Bigness of a large Pea half globular, from the aqueous Humour pressing on the Parts that were relax'd by the *Abscess*, and the swell'd Parts have been very transparent. I give it as a Caution not to open these sorts of Eminences for *Abscesses*. If there be an Opacity, which most commonly there is at first from the Inflammation; by scarifying, that Opacity

city will go away. Some Sight is better than none; 'tis a glorious Thing to behold the Sun.

I saw a poor Boy at *Hammersmith*, that was blind of one Eye from *Abscesses* that had mined through the Blades of the *Horny-Coat*; and the *Cicatrices* following made a great Opacity, which hinder'd the Rays from passing through that Coat. The *Cornea* of his other Eye was swell'd out towards his Nose to the Bigness of half a Pen, and was transparent in the swell'd Part; the other Part of the *Cornea* was opake; he cou'd see very well on that Side of his Eye next to his Nose.

IN the Year 1720, an old Man of seventy three Years of Age, came to me with an *Abscess* in the outward Blades of the *Horny-Coat* of his Left Eye, to the Bigness of a little Pepper-corn, opposite to the *Pupil*, with an *Albugo* all over the exterior Parts of that Coat, as far as the *Conjunctiva*; he cou'd not distinguish any thing; the *Conjunctiva* was blackish: I did not bleed him, for he seem'd to be very weak, but apply'd a blistering Plaister to his Temple; then I scarify'd him on the *Conjunctiva*, which was gangrened: No Blood came, but a little tinged *Serum*: I made him foment his Eye with a Rag dipp'd in warm Water, with hardly any Intermission; by the Means of the warm Water the Blood-Vessels began

to

to fill at the End of six Hours; then I scarify'd on the *Conjunctiva*, and inward Parts of the Lids, and evacuated about a Spoonful of Blood by breaking some of the Capillary Vessels. I made him continue washing his Eye incessantly: By these Means the Man, at the End of twelve Hours, could discern my Fingers when I went to examine his Eye. The breaking the Vessels, and evacuating the Blood, gave a Fluidity to the stagnated Juices, to pass free through the small Pipes. At the End of forty eight Hours he cou'd discern any thing. I continued scarifying him every other Day; he kept washing his Eye, and applying the Pulp of a roasted Apple at Night; and thus, at ten Days end, his Sight was perfectly recover'd. I order'd him a *Collyrium*, of three Ounces of Rose-water, Tutty one Scruple, Aloes six Grains, all mix'd together; and when, by standing, it was clear, to put three Drops of it betwixt the Eye-lids four Times a-day.

A poor Woman of about fifty Years of Age, living in *Hammer-smith*, sent for me: I found an *Abscess* on the middle and inferior Part of the *Horny-Coat* of her Left Eye, as big as a large Pepper-corn, of an Oval Shape, (I found it flatten'd and judg'd by that it was broke) and an *Albugo* all over the *Horny-Coat*, from the Pores being obstructed by a viscid Consistence of the
D Fluids;

Fluids ; it was more opake than the common *Albugo*. I was afraid it wou'd be impossible to recover her Sight ; for she had but a very little Glimmering of Light, and a violent Pain of her Head and Temple on the Side of the defective Eye. I blooded her in the Arm ; the next Day she was no easier : I began to scarify on the Inside of the Lids, and lower Part of the *Conjunctiva* ; I wash'd with warm Water, bid her to keep washing almost continually, and to apply the Pulp of a roasted Apple to it at Night ; the next Day, the Pain was not so great : She continu'd washing all that Day. The third Day I scarify'd on the same Place as before ; she continued washing with warm Water : The *Albugo* began to turn of a blueish Colour : I continu'd scarifying for ten Days, every other Day ; and she kept washing with warm Water, and applying the Apple at Night : I dress'd the *Abscess* with Oil of Eggs twice a Day, by touching it twice at each Dressing. Thus the *Albugo* went off entirely ; but the *Cicatrice* remains ; where the *Abscess* was, seems to be very thick, and hinders some of the Rays from passing to the lower Part of the Pupil ; but to the middle, and upper Part of it, they pass very well.

IN the Year 1722, a poor Woman came to me, led by another Person : She could not see to distinguish Things. In the Left Eye

Eye, there were the *Cicatrices* of two old *Abscesses*, through the *Horny-Coat*, and an Inflammation on the *Conjunctiva*, and *Horny-Coat* of that Eye, with a little Opacity on the outward Blades; the Eye-lids were swell'd and ulcerated; those of the Right Eye were swell'd to a great Extension, and the Edges and Insides inflamed and ulcerated; the *Conjunctiva* was inflamed; the *Horny-Coat* was extended the Thickness of a Shilling, like the Furrows of Plow'd Land; the *Horny-Coat* was here and there wrinkled, and, in other Places, was up in Eminences with little Ulcers like Pin-Holes; and an Opacity all over that Coat, and great Numbers of large or distended Blood-Vessels. She had been with several Oculists, one of whom was for paring off, or for chipping the Eye, as he call'd it, of those Eminences, which would have quite blinded her.

NONE of them were for touching her Left Eye, where the old *Cicatrices* were. This Distemper of her Right Eye was what we call a Swelling on the *Horny-Coat*; and this over-extension, and Stagnation of the Fluids, caus'd the Opacity; the Ulcers were the Effect of the Solution of the Continuity of their Parts.

IF to cure any Swelling, a Surgeon should use his Paring-Knife, he wou'd very often, endanger the Patient's Limbs.

I BEGAN to revulſe the Humours by bleeding in the Foot; becauſe ſhe had the Menſtrual Diſcharge obſtructed for a Year before. I put two Blifters, one on each Temple; after that I began to ſcarify her Right Eye on the *Conjunctiva*, and Infides of the Lids: I order'd her to waſh her Eyes with warm Water, and apply the Pulp of a roasted Apple at Night. I would not ſcarify the Left Eye, but waſh'd it, and apply'd the Apple at Night. It was impoſſible to make the old *Cicatrices* transparent; but the Eye that I ſcarify'd, began to diſcharge conſiderably; then I order'd her to waſh with a Decoction of Hyſſop warm, being more penetrating than common Water: I ſcarify'd every other Day; and, in fifteen Days, the *Horny-Coat* began to clear; ſo that on the ſixteenth, ſhe went to gather Fruit in the Gardens. I was ſtill oblig'd to ſcarify her every fourth Day, becauſe her Blood was thick and fizy. I gave her eight Grains of Turbith-Mineral, to open the Obſtructions downwards, with three Doſes of *Pillocochie*, which answer'd the Intent: The Inflammation and Opacity went off from the other Eye; but not the two *Cicatrices* of the old *Absceſſes*. I was three Months in curing her; for ſhe was uſed to drink Drams, which inflamed her Blood, and delay'd the Cure.

SECT.

S E C T. V,

Of an Abscess in the Horny-Coat, accompany'd with Ulcers on the Carunculæ, and Lacrymal Points, resembling the Plant Ægilops.

ABOUT four Years since I cur'd a Girl of an *Abscess* on the *Cornea*, extending from the lower Opposite of the *Pupil* to the *Conjunctiva*, with an Inflammation on the *Conjunctiva*, and all round the *Caruncula*, and Inside of the Eye-lids; and with Ulcerations on the *Caruncula*, and inward Edges of the Lids. The Orifices of the little Pipes were ulcerated, and appeared like little Streamers extending from those Ulcers of the inward to the outward Edges of the Lids. It resembled the Beard of the Grass *Ægilops*, spread here and there. The *Pus* coming from the Ulcers stuck to the Eye-lashes, and sometime closed the Lids together, the Tears kept running down her Cheeks; and, when I press'd on the *Carunculæ*, there came a great Quantity of *Pus* from the cavernous Ulcers of it. She was about twelve Years of Age; and had been under this Distemper nine Years, which was thought, by several Persons, to be a *Fistula Lacrymalis*. I began by scarifying, and scarify'd upon and about the *Carunculæ*, and the

D 3

Edges

Edges of the Lids, to break the little Ulcers on the Parts: They made a very great discharge after the second Scarifying; I ordered her to press with her Thumb upon the *Carunculæ*, three or four times a Day, to give a little Elasticity to the Parts that were too much relaxed: I continued Scarifying fifteen times, every other day once, and thus the Girl was Cured in six Weeks.

I C U R ' D a young Woman at *London*, living in *Parkers-Lane*, about twenty Years of Age; she had five Abscesses on the *Horny-coats* in both Eye, with a thin *Albugo* on the outward Blades of the Coats, occasion'd by an Inflammation from the Abscesses: for some time she cou'd not see to distinguish any thing, and had been Blind about thirty Days. These Abscesses had not hollowed all their apparent bigness, so as to separate entirely one Membrane from the other, but only by Spaces, for they did not stand up with Eminences: If they had not been stopp'd they would have made an entire Solution of the Continuity, run all five into one Abscess, and endanger'd loss of Sight.

I B E G A N by Scarifying both Eyes on the *Conjunctiva*, and insides of the Eyelids; I made her wash with warm Water, and apply the Pulp of a roasted Apple at Night: I Scarified her five times, and she continued washing her Eyes: At the end
of

of fifteen Days she cou'd see to Read the
finest printed Bible.

S E C T. VI.

*Of a Cavernous Ulcer on the Horny-coat of
the Eye.*

I C U R'D a Child of Mr. R I G H T O N (a Wax Chandler in *Chandois Street*, by *St. Martins-Lane, Westminster*) of a Cavernous Ulcer in the Middle of the *Horny-coat*, with thick Edges all round the Ulcer, and very *Opake*; the Child could not see to distinguish things with that Eye; there was a continual ouzing from the Sinous's through the Orifice of the Ulcer; those Sinous's were from an Abscess two Years before. I saw this Abscess at first, when it was no bigger than a middling Pins head, but the Mother being fearful, would not then let it be touch'd: The Abscess, undermining the Blades of that Membrane, grew to the bigness of a small Lentil: I propos'd to cure it by Scarifying; but having done it once, was oblig'd to desist, because there ensued a *Hippus* on the Ball of the Eye, *viz.* a shaking or trembling of the Eye.

THEN I drest her Eye with a Deterfive
Ointment, made of twenty five grains of
Verdigrease, fifteen of burnt Allum, and
D 4 forty

forty of Sugar-candy, all in fine Powder, and mixt with one Ounce of Butter; the bigness of a large Pin's-head to be put betwixt the Eye-lids once a Day: It may be done with a Pencil-brush, drawn betwixt the Eye-lids, and the *Conjunctiva* must be touch'd with it. In two Months time I entirely heal'd the Ulcer, and the Child cou'd see any thing with that Eye; but there remains a little thin *Cicatrice*.

S E C T. VII.

Of Wounds of the Horny-coat from exterior Causes.

SOMETIMES strange Bodies fly into the *Horny-coat*; as it happens to Smiths, in forging Iron, some of the Scales will stick in the Blades of that Coat, and keep a continual Irritation, which often occasions a very great Inflammation on the Parts: The Surgeon having placed the Patient in a Chair, fronting the Light, and his Head leaning backwards, and having an Assistant to hold the Head, first puts the *Speculum Oculi* on the Eye, then taking a fine Forceps, with one of the Branches raises the Part that sticks in betwixt the Blades; and, when a little of it is raised, he gently with the Forceps takes it out: And this done he must dress it with Oil of Eggs,

Eggs, twice a Day : If there is any great Inflammation, let him Scarify, Bleed, and Blister. Stone-Cutters are subject to have little pieces of Stone get into their Eyes, and must be treated after the same Method. Persons working with Needles, and Shoemakers with their Awls, have the Misfortune to run one into the *Horny-coat*, and must use the ordinary Defensive with Compresses dipt in it, and put them on the Eyes, and repeat them every three Hours: both Eyes must be drest, for fear of a De-fluxion: Those, as I mention'd before, must be drest with the Defensive over the Oil of Eggs, and the Patient be restrain'd to very low Diet, to prevent an Inflammation: And, if there be great Pain in the Eye, he must be Blooded and Blister'd; the Eyes must be washed twice a Day, with Brandy one part, and Water two parts, warm, when the Compresses are taken off. Sometimes the Needle penetrates into the *Iris*, and then beware of an *Hypopyon*; at other times the *Iris* becomes adherent to the *Cornea*.

To prevent this Adherency, the Surgeon must rub gently his Thumb on the Upper Lid, this will make the *Iris* dilate and contract, by which means he will hinder the little Fibrous Hooks from interlacing the one into the other; and to prevent the *Horny-coat* sticking to the *Iris*:

For

For most commonly in these Cases the *Iris* swells, and sometimes touches the *Cornea*. The Patient must not stir out of Doors, for a Month, in case the Instrument has prickt the *Iris*. I have seen *Hypopyons* that have burst the Eye at five Weeks end, and this was occasion'd by a neglect of regular Methods.

I was sent for to a Boy about three Years since, who in driving the Staple of a Door, had the Misfortune of having part of it fly into his Eye, which broke the *Horny-coat* on the Side of the greater *Canthus*, close to the *Conjunctiva*, and, from the *Conjunctiva*, three parts over the Coat; and then, down to the inferior Part of that Coat; the *Aqueous Humour* was gone, and the Eye was become flat. A busy Old Woman had applied a Plaister to it; the Boy was in violent Pain: I made the ordinary Defensive, with Rose-water, Alum and Whites of Eggs, dress both Eyes with it, put him to Bed, took away both Pillow and Bolster; ordered him Water-gruel, and sometimes Broth, kept him very low, for fear of an Inflammation, and dress him every four Hours with Compresses dipt in the Defensive. From the first dressing, the Boy was easy; I continu'd to dress him in this Method for twenty Days; the Eye was filled in twenty four Hours with the *Aqueous Humour*: There was such a great
Solution

Solution of the Continuity of the Parts, that it was impossible to keep the Eye in its proportion; the twenty first Day, he got out of his Bed, but began to have some Pain in his Eye: I therefore Scarified him every Day, for seven Days, whereby somewhat of his Pain was daily abated: The cause of the Pain was, that the *Uvea*, digested, came through the Wound of the *Cornea*: This caused an extension of the Veins of the Eye; so, by breaking those Vessels of the *Conjunctiva*, it gave ease, and hinder'd the too great Flux of Humours on the Parts, and the *Horny-coat* began to clear, to the *Cicatrice*; then I drest him with Oil of Eggs, twice a Day, and the Defensive at Night: At five Weeks end, I apply'd a roasted Apple every Night, and order'd him to wash his Eye with warm Water in the Day-time; the Wound was very well Cicatriz'd, without any Pain remaining: The Eye, that is not hurt must be always drest for fear of a Flux of Humours upon it: I have seen several that have lost both Eyes, though only one has been hurt at first, by reason of bad Applications, and irregular Methods.

S C C T.

S E C T. VIII.

Of an Hypopyon.

A N *Hypopyon* is an Abscess of the *Iris*, with a violent Inflammation all over the Eye, and great pulsation and pricking Pain of the Temple and Eye, which are almost insupportable: The Arteries of the Temple beat very high, attended for the generality with a very high Fever: Tears fall in abundance, the Nose runs with often Sneezing: The Eye seems ready to leap out of the Head: The Pain is so violent in this Distemper, that some Persons appear to be raving Mad: Abscesses of the *Iris* are sometimes in one Part of it, sometimes in another; Sometimes the *Uvea* has an Abscess, and sometimes the *Choroides*, so as to be separated from the *Sclerotis*; sometimes the *Pus* makes its way through the *Sclerotis*, betwixt the Edge of the *Cornea* and *Conjunctiva*, without falling into the Chamber of the Eye: But for the Generality, it falls into the outward Chamber: 'Tis a floating *Pus* that lies betwixt the *Horny-coat* and *Iris*, of the Colour of the lower parts of Human Nails: The *Pus* will extend to that bigness, as to fill half the outward Chamber, if not prevented:

Some of those Abscesses have little Cyrtises that contain the Matter in them.

Galen says, that in his Time, there was an Oculist called *Justus*, who Cured the *Hypopyon* by shaking the Head a particular way.

ABOUT nine Years since, I was sent for to see a Young Woman of about twenty Years of Age: She was just recover'd of the Small-pox: She had an Abscess on the *Horny-coat* of her left Eye, with a violent Pain in the Globe of the Eye, in the Head and Temple, and pulsation on the Eye and Temple, with pricking darting Pains: I perceived there was an *Hypopyon* in the same Eye: As the Abscess of the *Horny-coat* was no bigger than a Pepper-corn, and that covering the Opposite to the Pupil, it did not hinder me from perceiving the *Pus* behind the *Cornea*: I blooded her in the Foot, and order'd her to wash her Eye with six Ounces of Plantain Water, mixt with two Scruples of Nitre, and apply'd the Pulp of a roasted Apple at Night; the next Day she was no better, the Pain continu'd, and the *Pus* was augmented: I order'd her to lye on her Bed, and made a gentle Friction on the Eye-lids, in order to disperse the *Pus*, by breaking the fine *Cyrtis* that contain'd it; but in vain: I blooded her in the Temporal Artery, on the side of the *Hypopyon*. I evacuated about eight Ounces

Ounces of Blood. The Pain of the Head and Temple went off; the next Day she was indifferent easy, as she was in her Bed; I had taken the Pillow and Bolster away and made a gentle Friction on the Eye-lids, and then I shook her Head; by these Methods, in twice doing, I past all the *Pus* through the Pupil, and lodg'd it in the bottom of the inward Chamber, then I ordered the Bolster and Pillow to be put on her Bed, to keep her Head higher than it was before, that the Matter might keep behind the *Iris*; I scarified every other day for ten days, and apply'd the Pulp of a roasted Apple at Night; the Abscess of the *Horny-coat* left a *Cicatrice* which was Opake.

If the *Pus* be not lodged in the inward Chamber of the Eye, it very often bursts through the *Horny-Coat*; and the whole Substance of the Eye comes away.

I C U R ' d a Man at *Hammer-smith* of an *Hypopyon* in his left Eye, with an Inflammation on the *Conjunctiva*; and a little Opacity on the *Horny-coat*: He had a violent Pain in the Eye and Temple of the same Side, and in the Head: He had been Blooded in the Jugular Vein, before I went to him; I applied a large Blister on his Back: But finding there was a *Pus* betwixt the *Iris* and the *Horny-coat*, I held his Head backward as he sat in the Chair, rubbed

rubbed the Eye-lids gently with my Thumb five or six times in a Circular Motion, upon which the Pus began to diminish: I kept rubbing the Eye-lid twice a Day for five Days: At the End of the fifth Day, the Pus was quite dispersed: As for the little Opacity that was on the Horny-coat, most of it went away by Scarifying; then I dress'd it with Oil of Eggs twice a Day. By this Method I have Cured several Hypopyons, and never had an Eye burst under my Care.

SECT. IX.

Of Cicatrices of the Horny-coat.

CICATRICES are from Wounds, or Abscesses on that Coat: Some are of a darkish, others of a whitish Colour, like Mother of Pearl, according to their thickness and driness; the dryer they are the whiter they appear. Those that have been par'd, are much thicker than those that have not, and of a more solid Substance: If they have penetrated through all the Blades, or have been par'd, there is no Cure for them.

Those that have not been touch'd, and are *Cicatrices* from *Abscesses*, may be brought to a very thin Cloudiness; so that the Persons may see Objects pretty well.

ABOUT

ABOUT two Years since, I Cur'd the Eye of a Woman of twenty Years of Age: She had a *Cicatrice* from *Abscesses* of the *Horny-coat*, covering all the Opposite of the Pupil, with three or four Eminences on the convex Part of the *Cornea*: This *Cicatrice* was of a Cartilaginous Colour; the other Part of the *Horny-coat* was Opake, but not with that thickness as the convex Part: She had been Blind of that Eye nineteen Years; there was a great Inflammation, and Extension on the *Conjunctiva*, and insides of the Lids: She was oblig'd to wear something before her Eye; for it appear'd like raw Flesh, except the whiteness of the *Horny-coat*.

I BEGAN by Scarifying on the insides of the Eye-lids, and on the *Conjunctiva*: I evacuated about a Spoonful of Blood. After the first Scarifying, she could see my Fingers: I brought that Cartilaginous Excrescence (as some call it) to be of a very fine Ligamentary Substance in appearance, and she could distinguish any thing.

THE greatness of the Opacity was from the too great quantity of Fluids, that lay in the Pores and Interstices of the *Horny-coat*: The discharge from the Parts that were Scarified, drew away some quantity of Substance that was in the *Cornea*; the little Opacity, which remain'd, did not much hinder the Light: The greater the

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Discontinuity of the Parts, the greater the Opacity must be.

Sir ISAAC NEWTON shews that the Opacity of all Bodies arises from the Multitude of Reflections caused in their internal Parts; and that between the Parts of opaque and colour'd Bodies there are many Spaces either empty, or replenish'd with Mediums of different Densities; and that the true or principal Cause of Opacity is the Discontinuity of their Parts; because some Opaque Bodies become transparent, by filling their Pores with any Substance of equal, or almost equal Density with their Pores: Thus Paper dipp'd in Water or Oil, Linnen-cloth dipp'd in Oil or Vinegar, and many other Substances soaked in such Liquors as will intimately pervade their little Pores, become, by that means, more transparent than otherwise; as, on the contrary, the most transparent Substances may by evacuating their Pores, or separating their Parts, be render'd very opaque, as Salts, or wet Paper, by being dry'd; Horn by scraping, Glass by being powder'd or flawed, Water by being form'd into small Bubbles, either alone in the form of Froth, or by shaking it together with Oil of Turpentine, or some other convenient Liquor with which it will not perfectly incorporate. But, however, to render Bodies opaque, and colour'd, their Interstices
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must not be less than some determinate size.

I HAVE Cur'd several Children having superficial *Cicatrices* on the *Horny-coat*, with that Ointment I mentioned Section the 6th, and the Pulp of a roasted Apple apply'd at Night: If there be any Inflammation in the Eye, it must be wash'd with warm Water. I recover'd two Children of *Cicatrices*, proceeding from *Abscesses* of the *Horny-coat*, which had cover'd almost all that Coat; they had both of them *Hypophyses* on their Eyes: I dress'd their Eyes once a Day with that Ointment: In about fifteen days time I had clear'd the *Horny-coats* to the bigness of about a Pins-head. When I came to examine them close, I found that the *Iris* adher'd to the *Cornea*: And it is my Opinion that they proceeded from *Abscesses* of the *Iris*, and are a sort of *Hypopyon*.

IN case a Surgeon, when first sent for, perceiveth the *Iris* to be swell'd by an *Abscess* of that Part, he must try to break it in the Inside, where it is, by laying the Patient on his Back, and keeping him so, till he sees a Determination of the Distemper: he must keep him very low, by taking away both Pillows and Bolster; then rub gently with his Thumb in a Circular Motion on the Eye-lids twice or thrice; and this he may do three times a Day: If he
find

find this Method unsuccessful, and that the Pain increases, he must bleed him in the Jugular Vein; if that will not do, in the Artery of the Temple on the Side of the defective Eye: Rather than let the Eye burst, I would advise the Young Surgeon to take a flat Needle, in Case there is no great Opacity on the *Horny-coat*; if there be, he will not be able to see how to govern the Needle.

THE Method to be used in doing it, is to put a *Speculum Oculi* gently on the Eye; then you thrust the Needle into that part of the *Cornea*, which is next to the *Conjunctiva* toward the Temple, if the *Abscess* of the *Iris* does not extend it self to the *Cornea*, so as to stick to it, for if it once stick, in a very short space it will tear all the Membranes of the *Cornea*: The Needle being past the *Cornea*, you thrust it in to the most eminent Part of the *Abscess*; the *Pus* will mix itself with the *Aqueous* Part of the Eye, and the *Aqueous* Humour will precipitate the *Pus*, by clearing itself: If there should be any great quantity of *Pus* in the outward Chamber of the Eye, the Surgeon must try to pass it through the Pupil, and lodge it in the inward Chamber, as I have mentioned in the *Hypopyon*; The Eyes must be drest with the ordinary Defensive. If the *Abscess* of the *Iris* has burst through the *Cornea*, the Eye must be-

Scarified every Day, to hinder the Matter from making any further Progress; for the *Iris* will sometimes come all away by digestion, and the Patient will be Blind: The Surgeon must be very watchful for five Weeks at least; for they are all very ticklish Cases. There must be a Compress put on the Eye, dipt in Brandy and Water, and renew'd every four Hours, or else it will be too dry, and growing hard, will hurt the Eye: After having been Scarified fifteen Days, the Ulcers may be dress'd with Oil of Eggs, twice a Day with a Feather; the Scarifying must be continued as long as there is any Pain in the Eye: If Scarifying do not remove the Pain, Revulsions must not be spared, *viz.* Bleeding and Blistering, and, as long as occasion requires. The Patient must have no solid Food, but Water-gruel or Broth, for chewing will give a great Motion to the Eye, and may augment the Inflammation: He must take no Purge; If Costive, he may have a Clyster, for Purges will increase the Inflammation within the Eye, which those Distempers are too subject to: Purges are very proper in an *Ophthalmia*, where there is no tendency to *Abscesses* of the *Iris*, or of the *Choroides*; and Surgeons ought to be very careful to examine well the Nature of the Distempers, before they determine any thing: If, after the five Weeks, in all appearance

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the *Cicatrice* be formed, and the Inflammation gone off; the Patient must wash his Eye, or Eyes, with Elder-flower-water, three or four times a Day, and apply the Pulp of a roasted Apple at Night, observe a very sober Diet, and use no violent Exercise, for fear of inflaming those Parts that are so very tender.

A Shoemaker of *Richmond* in *Surrey*, twenty four Years of Age, had *Cicatrices* on the *Horny-coats* of both his Eyes, of twenty two Years standing: They appear'd like a very fine Cobweb, more opake in some places, and thinner in other: He used to have Inflammations very often on his Eyes, and which extended the *Cicatrices*, by filling the Opacity with too great a quantity of Juices; he could distinguish nothing, while the Inflammations lasted. I thought I cou'd have taken off the old *Cicatrices*, and therefore began with Scarifying for three Days, once a Day: I Scarified twice more, and an Inflammation came on his Eyes, which obliged me to desist from that Operation: Some Old Woman had put the Juice of House-leek and Celandine cold in his Eyes: This stop't the Pores, and so augmented the Inflammation, that he had like to have lost his Sight. The fine Membrane that covers the *Horny-coat*, was as thick as a Sixpence, and full

of little Holes, and the *Conjunctiva* was as thick as a Crown.

I blooded him in the Jugular Vein in the Morning; in the Evening I blooded him in the Foot; the next Day I found him no better; the Pain of his Head and Temples was very violent; his Eyes grew worse; the Swelling and Inflammation were so great, that the Tears came down his Cheeks tinged with Blood; next Morning I opened the Temporal Artery of one Side; at Night I opened that of the other; then I put a very large Blister on his Back, and the next Day he was easier. I applied Cloths (dipp'd in Brandy one part, Water three parts, warm) every three Hours to his Eyes, for eight Days and Nights: I was obliged, all this while, to leave off Scarifying, because the Parts were too much irritated by the violent Swelling and Inflammation: By this Method of Revulsion and dressing his Eyes I brought them to the same State as they were before I began with them.

I NEVER intend to undertake the Cure of those sorts of *Cicatrices* of so long standing: I thought myself very happy to leave the young Man in the same Condition that I found him; for the Reputation of the Surgeon, and Loss of the Patient's Sight, very often go together. I put these Accidents down, that happen'd to me in my Practice;

Practice; that others may prevent the ill Consequence which had like to have fallen on me.

S E C T. X.

Of a Phalangosis and Cicatrice of the Horny-Coat.

PHALANGOSIS is a Distemper occasion'd from the Hairs of the Eye-lid rubbing against the *Globe* of the Eye; the Under Eye-lashes sometimes turn directly up against the *Horny-Coat*.

I saw a poor Man at *Sheffield*, who had a *Cicatrice* on the *Horny-Coat* of his Left Eye, which extended it self from the lower Part of the *Cornea*, half-way the Opposite to the *Pupil*, with a little Opacity all over the Remainder of the *Cornea*; he could see but very little with that Eye. When I came to examine the Cause, there were four Hairs of the under Lid, which were turn'd directly up against the *Horny-coat*; those Hairs had fretted it, and occasion'd Ulcers, and the *Cicatrice* followed. If the Man would have been at the Charge of staying in Town, I could have brought him to see very well of the upper opposite Part of the *Pupil*.

ABOUT two Years since I saw a poor blind young Man passing through *Hammer-smith*, the *Cornea's* of his Eyes were opake

all over: His Eyes were in their full Proportion, the Convex Part of the *Horny-Coats* adher'd to the Insides of the upper Lids; these Adherences were as thick as a middling Straw, and half a quarter of an Inch in length. If the young Man would have stay'd in Town, I would have separated the Adherences, and try'd to remove some of the Opacity by scarifying. I believe I could have brought him to see indifferent well, because of the Fulness of his Eyes; but, in great Opacities of the *Cornea*, where the *Horny-Coat* is flatted, there is no hope; for the *CrySTALLINE* most commonly adheres to the *Cornea* and *Opake*, and is sometimes shrunk: His Distemper was from a violent Inflammation, at first on the *Conjunctiva*, *Cornea*, and Insides of the Lids; the *Cornea* ulcerated, the little Fibrous Hooks interlacing with the ulcerated Part of the Eye-lids, they join'd together and cicatrized. A Case I never met with before; tho' I have examin'd above a hundred blind in a Day at *Paris*, under Mr. *Woolhouse* in the Hospital of the Blind.

S E C T. XI. Of STAPHYLOMA.

STAPHYLOMA is a Distemper that relaxes the *Horny-Coat* of the Eye; sometimes

times one side, other times the middle of it, is swell'd: There is a Difference betwixt these Tumours from a *Staphyloma*, which are the whole Substance of the *Horny-Coat*, and the Tumours from *Abscesses* of that Coat; those *Abscesses* never have the *Iris* and *Uvea* sticking in the swell'd Part, but the others have. The *Staphyloma* sometimes happens in Venereal Cases, and sometimes after the *Small-Pox* or *Measles*: It begins with an Inflammation on the *Conjunctiva* and *Cornea*, is attended with continual Tears, and a Running of the Nose; and with a Pain of the Head and Temple of the same Side. The *Horny-Coat* begins to bear out by the too great Quantity of Fluids. The *Iris* and *Uvea* fall down into the swell'd Part. There are five Distempers in this Class called from the different Things they represent.

THE first *Staphyloma*, properly so call'd; the second *Myocephalon*; the third *Ragoides*; the fourth *Melon*; the fifth *Ilos*. *Myocephalon* represents the Head of a Fly. At *Sheffield* in the County of *York*, about eight Years since, I saw a poor Man that had a *Myocephalon* on his Right Eye, accompany'd with a *Fistula* in the *Horny-Coat* of the same Eye, and an owzing through the *Orifice*. Sometimes the *Orifice* was closed up, at other times it extended some of the Blades of the Coat to the Bigness of a Pea, with a violent

violent Inflammation on the *Conjunctiva*, and a great Pain of the Head and Temple of that Side; he was obliged to have it lanced to give him ease; and, after it was opened, the Pain and Inflammation went off: It had been lanced several times before I saw him; the Distemper having lasted seven Years. In Length of Time, the *Myocephalons*, that are accompany'd with *Fistula's*, sometimes waste the *Horny-Coat*, and the Eye becomes flatfish; and, at other times, *Abscesses* of the whole Substance of the Eye follow; which are very miserable Cases, and very often bring Blindness on the other Eye, unless proper Means are speedily us'd: Sometimes a *Cicatrice* is formed, without any *Sinus* left betwixt the Blades; and there remains a Blemish with loss of part of the Sight, according to the bigness of the *Cicatrice*, and quantity of the *Iris*, and *Uvea*, that adhere to the *Corned*.

THE *Staphyloma* relaxes the *Horny-coat* more than the *Myocephalon*, reduces the *Iris* and *Uvea* to the likeness of a little black Grape, and makes a real *Hernia* of them: If, after the eighth Day from the *Horny-coats* being relaxed, it be not taken in hand before its Tumour bursts, there follows a *Cicatrice*, which makes an incurable Opacity: If the Inflammation do not go off soon, the whole Substance of the Eye comes away by Digestion: Sometimes, when
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the Inflammation is gone off in part, there follows an Ulcer, which keeps irritating; and, in Length of Time, will destroy the Eye; nay, it often brings Inflammations on the other Eye, on the *Arachnoides*, viz. that fine Coat that covers the *Cryſtalline*; then Opacity follows, which some take for the *Cataract*; and I am very certain they are not curable.

If the Surgeon is sent for at first, before there is any great Opacity, and within four Days after the *Cornea* is relax'd, he is to take a large flat Needle, or a hollow *Canula* with a Needle in it, and thrust it through the *Conjunctiva*, the Thickness of half a Crown, from the *Cornea* toward the Temple, and let out all the aqueous Humour, by which Means the swell'd Part will become flat; then to take a Case made of Horn in the Shape of the *Tunica Cornea*, but larger by the Thickness of half a Crown; and there should be two of them, that, when one is taken off, the other may be ready to put on; there must also be a Thread put through a little Part of the Horn, to take it off, and help to put it on. The Case being rubbed with Ointment of Tutty camphorated, must be put on the *Horny-coat* under the Eye-lids; and a *Compress* dipp'd in the ordinary Defensive over the Lids. If it is Summer-time, the *Compresses* should be renew'd every three Hours; and the
Case

Case changed every four Hours, always anointing it before it is put on. He must scarify every Day on the lower Part of the *Conjunctiva*, and Inside of the Eye-lids; the Case must be on the Eye when he scarifies, and continu'd four Days on it. After the Case is left off, he must continue scarifying every other Day for fifteen Days; and wash the Eye with Elder-flower Water warm; both Eyes must be dress'd with the Defensive a Week, for fear of an Inflammation on the contrary Eye. At the End of the eighth Day, the Dressing of the contrary Eye may be left off; then he is to put the Pulp of a roasted Apple at Night on the Eye affected, mix'd with two Grains of *Camphor* bruis'd, and keep the Patient very low in Diet, with nothing but Water-Gruel or Broth, who must chew nothing for fifteen Days. If he has any Pain in the Head or Eye, he must be blooded, and have a Blister betwixt his Shoulders. The scarifying will contract the Parts that were too much relax'd, and bring the Eye to its right Shape, with the help of the Case, which no other Method will do. The scarifying clears the *Horny-Coat*, and takes off the little Opacity that is on it; and the Persons will see very well, if this Method be taken within the fourth Day after the Accident. This Operation was found out by Mr. *Woolhouse*, a very

a very great Oculist at *Paris*. I once performed the Operation myself.

I WAS desired to go and see a Man at *Richmond* in the County of *Surrey*, who kept an Ale-house at the Sign of the *King's-Head* by the *Dog-Tavern*; he had a *Staphyloma* on his Left Eye, with a very great Opacity on the End of the swell'd Part of the *Horny-Coat*; he told me, a Surgeon of *Kingston* in the same County, that had learn'd *The Art of Surgery* at *St. Thomas's Hospital* in *Southwark*, had taken off several Scales from the *Horny-Coat* of his Left Eye; and at last, left him worse than he found him. All those Methods in the Practice of Surgery are very injurious to the Patient, and shameful to the Surgeon, as I mention'd before: By paring off the Opacity, the transparent Blades under the Opacity are wounded; and Nature filling up the Vacancy, the *Cicatrice* is greater, and the Sight less than it was before the Operation.

THIS Misfortune of the poor Man at *Richmond*, was from a violent Inflammation on his Eyes; on his Right Eye he had a Dissolution on the Vitreous Part, and an Atrophy of the *CrySTALLINE*; a Narrowness of the inward Chamber, Immobility of the *Pupil*, with a little Opacity on the *Horny-Coat*. In his Left Eye, the *Iris* was relaxed on one side, and fell into the *Horny-Coat*, which became an *Hernia* of the *Iris*, which
always

always follows a *Staphyloma*; and unless taken Care of within the fourth Day after the Accident, is incurable.

RAGOIDES is, when the *Horny-Coat* swells bigger than in the *Staphyloma*; the *Iris* and *Uvea* fall into the swell'd Part of the *Cornea*, the Coat bursts, the *Uvea* comes through, and forms a large Tumour like a large Grape. There is not only Loss of Sight, but a very great Deformity; it hinders the Persons from closing their Eye-lids; and, by continually irritating the Parts, a Defluxion of Humours falls on the Eye; these should be taken off. The best way is by Ligature; which shou'd be straiten'd every Day, till they fall off. After they are dropt, the Surgeon must scarify for a Month every other Day, and apply the Pulp of a roasted Apple at Night. The Days the Eyes are not scarify'd, they may be dress'd with Oil of Eggs: It will bring the Wound soon to a *Cicatrice*.

MELON, is when the *Choroides* follows the *Uvea*, making a greater Tumour than the *Ragoides*, and is in shape of a little Apple. In case these Tumours are narrow at the Bottom close to the *Cornea*, they may be tyed with a Thread close to the *Horny-Coat*, straitning the Ligature every Day till they fall off. If they have torn all the *Cornea*, a great Defluxion of Humours falls on the other Eye, and endangers Loss of Sight.

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As the Sight is entirely gone in the Eye, where these *Melons* are; the Surgeon must try to save the other Eye, which is to be endeavour'd by this Means. He is to take a little round-pointed Knife of about three quarters of an Inch in Length, with the Edge on the Convex-Side; placing the Patient on a Chair, his Head leaning a little backward, and held by an Assistant. If it is the Right Eye, he is to open the Lids with his Fore-Finger and Thumb of his Right Hand: If the Left, with the Left Finger and Thumb, and begin about the Length of a Barley-corn below the Edge of the *Horny-Coat* toward the Temple, and pass through the *Conjunctiva*, *Sclerotis*, and *Choroides* a-cross the Eye, with the Edge of the Knife upwards, and bring the Point out as much below the Edge of the *Cornea* towards the Nose, as he enter'd towards the Temple, and all the Substances of the Eye will come away: Both Eyes must be dress'd with the ordinary Defensive every three Hours, if it is in Summer; every four will do in Winter. The Patient must be kept a Bed, and very low in Diet; nothing but Water-Gruel or Broth for fifteen Days. The Surgeon must inject with a little Syringe twice a Day, Elder-flower Water warm, all about the Eye, betwixt the Lids. At the End of fifteen Days, he may leave off dressing the well Eye. The Room must be kept

kept dark, and the Defensive kept on the Eye that is affected, for three Weeks; then he must apply the Pulp of a roasted Apple in the Day-time, as well as at Night; and keep it on in the Day-time for about fifteen Days, and after that for fifteen Nights; continuing to dress the Eye with Elder-flower Water all the Time. If there is much Pain in the Ball of the Eye, there must be a Blistering Plaister put betwixt the Shoulders: By these Methods all the irritating Parts will be taken away, and the Patient may wear a Glass Eye.

THERE is a Distemper which makes the Eye as big again as it was in its Natural Shape; where all the Coats are relax'd without being burst; the Lids can't close, and the Sight is entirely gone, with hardly any Pain, which occasions a very great Deformity. If the Patient has a mind, he may wear a Glass Eye. The Operation must be done, as mentioned before in relation to the *Melon*.

THE fifth Sort is called *Ilos*, from the Resemblance of the Head of a Nail. The *Uvea* comes through the *Horny-Coat*, beyond the Eye-lids, and grows hard; the *Cornea* becomes callous. The best way to cure the *Ilos*, is to cut off the *Uvea* with a fine Pair of Scissors. The callous Part may be scratch'd off the *Cornea* with the *Scarificator*, to make it a little raw; and the Wound dress'd with

with the Scarificator, to make it a little raw; and the Wound dressed with Oil of Eggs twice a Day, with the Application of the Defensive, on both Eyes, for fifteen Days; the Surgeon may leave off dressing the Eye that was not Operated at the end of the eighth Day; after the fifteenth, he may leave off dressing the other Eye with the Defensive, and apply the Pulp of an Apple at Night: If he finds that the *Cornea* does not *Cicatrize*, he must Scarify, every Day, on the Ulcer, to make it very raw, by which means the little *Fibrous* Hooks, interlacing one into another, will joyn the Parts, and the *Cicatrice* will follow.

ALL that is to be done with the *Ilos*, is to take off the Tumour, and *Cicatrize* the Ulcer of the *Horny-coat*; and, by that means, hinder a Defluxion of Humours on the other Eye, upon which very often Blindness follows.

ALL these five sorts of Distempers are in the same Class of *Staphyloma*, but only called by different Names.

THERE are *Cicatrices* from *Abcesses* of the *Horny-coat*, which some take for *Myocephalon*, where the *Iris*, or the *Uvea* does not adhere to the *Cornea*, as it happens in *Myocephalons*: These *Cicatrices* appear like the Eye of a Fly, darkish in the Middle, as big as a middling Pin's-head, with a

F

thick

thick whitish grey Opacity all round them, and generally a little Opacity all over the *Horny-coat* of the Eye: The Cause of these *Cicatrices* is from an *Abscess* of the inward Blades, and an extension on the outward Blades of the *Horny-coat*; the *Pus* breaks and falls into the outward Chamber, and leaves the outward Blades transparent, according to the bigness of the *Abscess*: The Opacity is from the over-Extension of the Pores of the *Horny-coat*, all round the *Abscess*, which makes a Solution of their Parts; and the Solution *Cicatrizing*, leaves the Opacity round in the Resemblance of the Flies Eye; and the Middle appears sometimes indifferent transparent: There is no Remedy for these sort of *Cicatrices*.

IN case there should happen an Inflammation on the Eye, where old *Cicatrices* are, they must be treated according to their Symptoms. About ten Years ago Mr. WOOLHOUSE at *Paris* Cured a Young Man, that had a violent Inflammation on his right Eye, with great Pain of his Head and Temple on the Side of the Defective Eye; there was a *Cicatrice* on the same Eye, (occasion'd by the Cutting of a Knife) from the upper part of the *Horny-coat*, to the lower, the Pupil adher'd to the *Cicatrice* on the Edge of the *Iris*: He could see of each Side of the *Cicatrices* when the Inflammation was gone, of which Mr.

WOOLHOUSE Cured him: He Scarified him once a Day for twelve Days without Success; he desired me to Bleed him in the Templary Artery of the same Side, which I did; the violent Pain of his Head and Temple of that Side was gone entirely off the next Day, and the Eye look'd fine and clear, except the *Cicatrice* of the old Wound he had had for ten Years before.

S E C T. XII.

Opacity of the Horny-Coat from Old Age.

THE *Sclerotis* is called by some *Cornea Opaca*, and the *Tunica Cornea*, *Cornea Transparens*: After the sixtieth Year, the *Tunica Cornea* next to the *Sclerotis*, generally speaking begins by degrees to grow *Opake*. I have seen some that have had only a little Transparency opposite to the Pupil, and could see only right forward: I take all these Opacities to proceed from the driness of the Parts; the Pores being too close, do not admit a sufficient quantity of Fluids into the Parts, to maintain their Transparency.

If the Eyes of Persons, who are turn'd of Sixty were to be Scarified every three Months, it would in a good Measure, maintain the Fluidity of the Juices, and prevent *Opacity*.

T H E R E are *Fistula's* of the *Horny-coat*, which penetrate all the *Blades* without any evident *Opacity*: These render a great *Light* as insufferable to the *Patient* as so many points of *Needles*; And the same is to be said of the *Ulcers* on that *Coat*.

I N *Fistula's* of the *Cornea*, every four Months or thereabouts, most of the *Aqueous Humour* comes away through the *Sinus*, but is recruited in four and twenty Hours: The Person is never capable of any *Business* which requires much *Light*: These *Fistula's* are more curious to behold than *Curable*; for I never knew any of them *Cured* so as to recover the *Sight*.

S E C T. XIII.

Of the Fistula Lacrymalis.

T O comprehend well the *Fistula Lacrymalis*, and to distinguish it from other *Diseases* which are more or less like it,

W E must consider the *Structure* of the *Lacrymal Points*, and their common *Reservoir*, which is commonly call'd the *Lacrymal Bag*; and its excretory *Conduit*, which with the same *Bag*, is like a little *Bottle* turn'd upward, and like a little *Bladder* which receives the *Tears* upwardly from the little *Orifices* called *Puncta Lacrymalis* in the *Eye-lids* made like the *Horns* of a
Snail,

Snail, which coming into a short Pipe fall into the Bag; from thence it goes through the *Nasal Pipe* into the Nose, as I have mention'd in the Anatomy of the Eye.

IN Inflammations of the *Conjunctiva* the Conduits into the Nose are always engag'd with it; and in the beginning of an *Ophthalmia*, the Persons blow their Noses often, and the Inflammation continuing causes a swelling in their inward Passages, which hinders the Tears from passing that way, but so fall down the Cheek. The same Accident arrives from Rheums of the Brain where one frequently observes a sort of Pus or Pituitous thick Phlegm mix'd with the Tears, which is caused from an ouzing of the inward *Glandules* of the Conduits, when the *Lympha* is stopp'd, or from a bad quality, you need not be surpriz'd to see come through the *Lacrymal Points* a sort of Purulent or Serous Matter; you must not conclude from thence there is a *Fistula* in the Part: We see very often the outward Edges of the Eye-lids besmear'd with a thick glutinous Matter, which sticks them together: There are many *Mucous Glands* in the Passage into the Nose as there are *Ciliar Glands* along the Edge of the Eye-lids: Why can't we expect an equal discharge proportional to their number, especially in Inflammations or from Irritations, as Tobacco or any thing which causes

violent Sneezing, which may produce the same Effect?

THERE are *Fistula's* where the *Os Unguis* is not touch'd: The rottenness of that Bone arrives most commonly in Venereal Scorbutick Cases; and those who have the Evil from their Births, and those who have the Root of their Nose flattish are very subject to this Disease, and those who have frequent Relapses of inveterate *Ophthalmies*.

THE highest Noses which have the *Lacrymal* points narrow, are not exempt from the rotting of the *Os Unguis*. There arrives very often a simple Obstruction in the inward part of the Nose, from a Palsy or Relaxation, and sometimes by a real undoing or Separation of the Sides of the *Nasal Pipe*, by a fall of Humours, or from Convulsion, or from Strokes or Blows given on the Part; then there is but very little hopes.

THE *Lacrymal Bag* grows big from Obstructions in its inward Orifice; and the Bag filling, dilates and swells upward, and becomes caruous and thick, and varicous in all its Body: Then when you compress it, there comes no Matter through the *Lacrymalis* Points, but on the contrary it determinates downward, and comes out through the excretory *Nasal Pipe* into the Nose. In the beginning of these Diseases, which

which are a real *Hernia* of the *Lacrymal Bag*, the compressive Bandage and the *Emplastr. contra Herniam* is very proper. But if the Relaxation and Dilation be very great, and the Tone of the Fibres does not take its natural Elasticity by this Astringent and compression, then it will be absolutely necessary to make an Incision, with a Bistoury on the *Lacrymalis* Point into the Bag: And to take care not to cut the Bag through and through, it will be very necessary to put a little Probe through the Superior *Lacrymalis* Point, which will serve for a Guide for the Bistoury. You dilate the Wound sufficiently ; afterwards you introduce either deterfise, opening, cleansing, and consolidating Topicks, according as Occasion requires, and the *Cicatrice* which will be made by the help of the compressive Bandage for some Days, will radically cure these sort of *Hernia's*. If there be large Blood Vessels and they are become varicous and the Bag is very much extended and swell'd, then it will be absolutely necessary to make an entire Excision or Extirpation of all the Bag. But then there will be danger of a great *Hæmorrhagy* ; and in this case it will be proper to make use of the actual Caustery, and that to be repeated two or three times. You must have at least two Funnels and some couple of cauterizing Irons.

IN the Suppuration or slight ouzing which accompanies the inward Inflammation of this little Bag, and its longitudinal production makes the *Nasal Pipe*, it is very common at first that the *Nasal Conduit* is inwardly stoppt by excrementitious Matter which ouzes and heats the Conduit and hardens it by the Inflammation: And that this Matter of its self comes through the *Lacrymal Points*, not only when the *Lacrymal Bag* is full or squeezed, but likewise by little Convulsions and Crispations caused from irritations and sharpness of the coagulated *Lympha* which is inclos'd, and which from time to time corrodes the little *Fibres* of the *Membranes*; which is the beginning of all *Fistula's* of this Kind, which are made by length of time; having first excoriated and torn its inward Parts, then the Bones become uncover'd, and it makes different Sinosities, sometimes towards the upper Jaw, and corrupts and hollows its Substance. Sometimes it throws Sinus's into the Orbit, and produces that Disease which is call'd Abuse of the Orbit, which is a terrible Distemper, and sometimes mines the Organs of the Eye, which it saps, and corrupts all, as if one had made the extirpation of it, besides the Damage it has done to the Orbit. In the beginning of these real *Fistulas* the Matter regorges principally by the Superior *Lacrymal*

mal Point, according to the Observation of *Aëtius*.

SOMETIMES there are little Ulcers all along the inward Membrane of the Eye-lids, which irritate and draw a Flux of Humours, and swell the Part so big, that the Lids seem to be turn'd inside out; when the Parts become hard then it is call'd *Sclerophthalmia*: Sometimes in these Cases the *Lacrymal* Points are stop't, and at other times they are open. If they are only superficially stop't, they may be very easily Cur'd by Scarifying all along the Eye-lids, and scratching the Points with the Instrument, and that to be repeated every other Day as occasion requires: So that by this Method they may be cured of two Indispositions; that of the stopping of the Points, and the Extension of the inward Membrane of the Eye-lids, which looks like raw Flesh.

MR. *St. Yves* says, that in these supernatural Extensions of the Under-lid, he uses to touch it with a Lunary Caustick all along its inward Surface which was turn'd out, and washing it afterwards with warm Water; then there follows for two Days a great Suppuration; and that being ceas'd, he applies the Caustick again; and that he continues so doing till he thinks the Tumour is sufficiently gone. He says that this Method always succeeded with him.

As

As for my Opinion I think the Scarifying is much better, because it is not so subject to cause an Inflammation on the neighbouring Parts: I am very certain that the Caustick wou'd not be proper for the Upper Lid, because the Dissolution of the Stone made by the Juices of the Parts, would fall on the *Cornea* and cause an Opacity; which Accident never arrives by the Scarificator.

IN slight Ulcerations of the inward Membrane of the Lids, and where the *Lacrymal* Points and Bag are engag'd, the Matter besmeares the *Horny-coat*, which often obstructs the Sight, and the Light of a Candle appears to them to be intermix'd with blue and yellow Streamers; and several Persons are afflicted with this Indisposition without knowing they have any Obstruction into their Nose. Its Cure is performed by pressing with their Thumb three or four times a Day on the great Angle, and bathe their Eye in an Ocular Bason, with Rose Water impregnated with the Powder of *Tutty* and *Crocus Metallorum*. The Ocular Bason is made most commonly with Silver, of an Oval Shape fit for an Eye, with a little foot to it to hold it by.

THERE are very often Fluxions and Inflammations caus'd by *Phlegmons*, or *Erysipela's*, which make a fall of Humours upon the Cheek and the Angle of the Eye, which soon produces a real *Fistula*, to those
who

who have had before-hand an Obstruction in the *Lacrymal Bag*, or in its Longitudinal Conduit ; the Part becomes extended and hard, with great Pain and Pulsation. You must in these Cases, put all to work to disperse the Fluxion, and soften the hard distended Part, or at least to make an exterior way for the Matter. The Bleeding in the Jugular ought not to be neglected, no more than emollient and maturative Decoctions or Resolutives. The best are the simple Decoction of *Camomile*, of *Mallows*, *Wormwood*, or the Leaves and Flowers of *Elder*, which is a very powerful Resolutive. The application of *Leeches* on the Part is very proper ; and the Bleeding in the Angular Vein of the Nose is very convenient if it can be done. *Basilic-magnum* is an excellent Remedy, and is much better than a Poultice made with Bread, which is commonly us'd in these Cases ; and some use it all over the Eye for Inflammations, which is a very dangerous Practice, because it is subject to make an inward suppuration of the Eye. In case the Eye be swell'd and inflam'd with these Tumours, you must put a roasted Apple on the Eye, and a Pledget cover'd with *Basilicum* over the Tumour ; or instead of the Apple you may apply the Mucilage of the Seeds of *Psyllium*, of *Quinces*, or *Fenegreek*, made in *Rose* and *Fennel* Water. The Blistering on the

the Neck, and Bleeding in the Foot are very necessary when the Disease is rebellious. If by these means you cannot disperse the Fluxion (without any remaining hardness,) and there is an *Abscess* formed, and that appearing at the Corner of the Eye; you must not call this Accident a *Fistula*, except that first the Matter has broke outwardly, and has left an Ulcer with an hardness of Flesh about it: For the real Definition of a *Fistula Lacrymalis* is a weeping Ulcer, with sordid Sinosities, narrow outwardly and large inwardly, with some Callosity, and the attainture of the adjacent Parts, and sometimes with the Rottenness of the Bone.

SOME Authors pretend to take away from the *Fistula Lacrymalis* its principal and essential Parts of its Definition, which is its Callosity, and that some qualifies for *Fistula's* those Phlegmatick Affections which are very often produced by a slow, thick, viscous *Lacrymalis Lympha*, which not having all its natural fluidity, but being overloaded with Sulphur, and depriv'd of volatile Salt, and other active Principles, stick by little and little to the inward part of the *Lacrymal Bag*, like a sort of Glue or Paste, so as to fill that Reservoir and its longitudinal Production.

SOMETIMES Interest, and very often Ignorance, give formidable Names to little Diseases.

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THE Ancients gave different Names to this Indisposition, according to the Colour of the Matter, as *Atheroma*, *Meliceris*, because they took the Bag for a *Cystis* or preternatural *Membrane*, which is found on the other Parts of the Body, and on the Eye-lids.

THEY were mistaken in that, not knowing well the Structure of the said Parts; but we are very much oblig'd to them because they shew'd us the indirect way of making the Excision or Extirpation of the *Lacrymal Bag*, in the greatest Part of these said Affections; and although good Ancient Authors call'd these Indispositions by the Name of crying *Fistula's*, it was because they saw a Sinosity, which they thought was preternatural; which was nothing else but the real natural Disposition of the Parts; but the Chirurgions Schools admit of no Definition of *Fistula's* without Sinosities and Callosities join'd together, against the natural disposition of the Part in question afflicted.

IT is very abusive, or an effect of Ignorance or ill Principles, to give the terrible Name of *Fistula Lacrymalis* to certain slight Indispositions, which I have frequently seen continue for many Years (without any farther disorder) only by pressing the Corner of the Eye three or four times a Day, and wiping the Matter off with a
 Piece

Piece of Black Silk. Phlegmatick Constitutions with the Conformation of their Noses, subject them to this slight Indisposition; as there are Persons which have every Morning concreted filth sticking in the upper part of their Noses; and there are Pituitous Persons who have the *Lacrymal Bag* fill'd several times in the Day, with indigested *Lympha*, the exterior Air having dissipated the little quantity of Salts and volatile Sulphur, which was in that Serosity filtrated by the *Lacrymal Glands*, and coming in a too great quantity to be duly absorbed by the *Lacrymal Points*. One sees by that, that it would be work in vain to probe and inject the *Lacrymalis Points* of those Persons; for there will be no radical Cure till one has dissipated all the superabundant quantity of Phlegm which their Blood is loaded with, by making a good Vehicle, and to establish the Elasticity; the Disease will always return.

FOR accomplishing well this Cure, a Seton is specifically necessary.

ALL the Volatiles are of good use, *viz.* the Volatile Salts of Vipers or Harts-horn, and above all of the Woodlice, and the Powder or Flesh of Vipers in Broth.

As to the Volatile Salt of Vipers, the Dose is from three Grains to eight in a proper Vehicle, such as Conserve of Roses or
Con-

Confection of *Hyacintha*, and drinking after it some liquid Cordial or Broth, or the Tincture of *Veronica*, *Carduus* Water, or *Scorzonera*, or a Sudorifick Decoction, &c. Coffee is very proper for these Persons.

IN *Holland* and in *Flanders*, they Cure this Disease by giving them simple Brandy to drink in the Morning fasting.

THE Smoaking of Tobacco is very good for these Persons, as well as Issues; and all Hydragogue Purges, as *Jalap* in Substance, or its *Resin* or its *Magister*, from seven to fifteen Grains.

ONE is very often obliged to send the Patient to the warm Mineral Waters, to Drink them and Bathe in them; and to Pump the Water on them, by which means a great many have been Cur'd.

SOMETIMES this Indisposition proceeds from a *Scrophula* or Evil; then the Woodlice in Substance, are an excellent Specifick, and Purging now and then with *Mercurius dulcis*, & *Diagridium*.

ONE must hinder the extending and dilating of the Bag, by wetting a Finger in Rue Water, and pressing it three or four times a Day on the said Bag; by which means you will hinder it from filling; and to apply the compressive Bandage, which will give an Elasticity to the Part.

SOME-

SOMETIMES there forms a little *Abscess* by the side of the lower *Lacrymal Point*, which very often mines as far as the *Horny-coat*, and sometimes it makes way, and breaks into the middle of the lower Point; and by pressing on the *Caruncula* one may perceive the Matter come through the lower Point; which is very different from the ordinary *Fistula's Lacrymalis*, where the Purulent Matter imitates the Nature of all Liquids, in rising and passing principally by the superior *Lacrymalis Point*, because the Matter comes immediately from the *Lacrymal-Bag*.

THESE *Abscesses* are not to be styled real *Fistula's*, unless by Length of Time they mine farther, and become callous. It happens very often that the *Lacrymalis Bag* is swell'd as much from the Air as from Serosities. This Air being drawn by the Nostril or Mouth into the Excretory *Nasal Conduit*, or through the *Lacrymal Points*; then when one presses the Bag, the Air comes out with Impetuosity.

SOMETIMES there comes a clear Limpid *Lympha* like the natural *Lacrymal Serosity*; that is, when the *Lympha* is benign, and in a Person of a good Disposition, the *Conduit* being by Accident obstructed downwards.

IT is this that Mr. *Anel* calls *Dropsy of the Lacrymal Conduit*; for it is very certain,

tain, that this Serosity would be neither clear nor benign, if it was filtrated by its proper Glands and Strainers of that *Conduit*. But the Canal being stopp'd, occasions a Stagnation and Corruption of this Liquor, which in its Nature is mucous and flow, and is diluted and clear'd by the *Lacrymal Lympha*, which is very deterfive, and full of Volatile Parts, which push it out, and carry it forward with itself: By the same Reason one may style a Bladder that is full of Urine, there being an Obstruction in its Passage, a Dropsy of that Bag, which is remedied by the Means of a *Catheter* which facilitates the Evacuation of Urine: One does the same to these pretended Dropsies of the *Lacrymal Conduit*.

MR. Woolhouse says, that Mr. Anel did not well examine the Thing, when he impos'd this Denomination as a new Discovery: *Entia non sunt multiplicanda sine necessitate.*

THERE are a great many Learned Men, who praise the Invention of the little Probe and Syringe, which they thought came from Mr. Anel: They are very much mistaken as to that: We have a great many good Authors who us'd them many Years before this Writer; and all Surgeons, who had the least Light, always knew that the Matter of the hidden *Fistula Lacrymalis* came always thro' the *Lacrymalis Points*, altho' Mr. Anel boldly

attributes to himself all the Invention entirely in his Book. See *Fallopig's Anatomical Observations*. See *Vander Linden's Medicina Philosophica*, p. 54. Article 21. Of *Punctis Lacrymalibus*. See *Galen de Oculis*, Chap. IX. *Article of the Ægilops*. See *The Observations of Schenkias*, in his first Book, and third *Observations of the Eye*.

IT is dangerous to undertake the Cure of those which are of a carcinomatous Nature; for it forwards their Deaths; and it is useless to undertake those when the *Fistula* penetrates down into their Nose, for they are not curable: But those which have their Opening in the Angle are curable, altho' it is evident that the Cure is very difficult, and the nigher it is to the Corner of the Eye, the more difficult will be the Cure, because it wants Space for the Operation. Those which are recent, are best to cure. You raise with a little Hook the superior Part of the Orifice of the *Fistula*; then take away by Incision all the Cavity to the Bone; then having cover'd the Eye, and its adjoining Parts, you must cauterize the Bone pretty much with a hot Iron, if the Bone be already rotten, to make a large Exfoliation. Some apply Causticks, such as Vitriol or Lime, and Verdigrease in Powder; but the Operation of these Remedies is not so proper, nor so quick as the hot Iron.

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The Bone being cauteriz'd, the Cure is the same as in Burns.

GALEN, Chap. II. in his first Book of *The Composition of Remedies*, writes thus of the *Ægilops*. There is a little Sort of Imposthume betwixt the Bone of the Nose, and Great Angle-Corner of the Eye, so that it becomes very difficult to be cured, if its Progress is not prevented. You treat them by diaphoretick and discussive Medicines, which operate without biting or corroding; for the Eye of itself is irritated by sharp Remedies, and the Parts defect'd become more inflamed: So that this Indisposition is not only difficult to cure by these Reasons, but because we must employ a great many Remedies of a liquid and soft Substance, which the Parts will not be able to keep; for, in course, some of it will run into the Eye. These Remedies cannot be kept on without the Bandage, which *Hippocrates* calls *Oculus*, which compresses all the Eye, and it will be impossible to support it for so many Days, as is necessary for the entire Curation: It is for this Reason that *Apolomus* does not prescribe any Remedies for the *Ægilops*: But *Archigenus*, after he had prescribed some few Remedies for this Distemper, then describes the manual Operation, as an effectual Cure. The following Prescription of *Archigenus* is not of Surgery, of Pharmacy in

general, which he left in Writing for the *Ægilops*, in his first Book of *Medicines*.

MAKE a *Poltice* with *Ervum*, or of *Orobanch* with Honey, to cover the *Ægilops* at the *Canthus* of the Eye, or else mix *Vineasches* with Vinegar for the same Effect. *Frankincense* with Pigeon's-Dung is a very good Remedy; or apply a Liniment made with Honey, and the Juice of that specifick Herb call'd *Ægilops*, which is a Sort of bastard Rye, which grows amongst Wheat, Barley, and Rye; it is call'd in *Latin Testuca*, and it grows else by the High-ways; it is a Dog-Grass; when it grows in the Fields, the Country-People about *London* call it *Couch-Grass*.

BUT when the *Ægilops* is not open, you must put upon it the *Staphisagria* with Honey in the manner of a Plaister, or *Alumen Scissile*, which is a sort of Filamentous Talk mix'd with Turpentine in form of a Plaister. Sometimes I use a little Roll of Wool dipp'd in Sea-Hare's Blood: And apply the *Melenterie* bruis'd, which *Dioscorides* makes mention of, which is the natural *Calcitis*, or Vitriol calcined by a subterranean Fire in Copper Mines; and if the *Ægilops* is not cured by these Means, you must open and extend the Angle, and pierce it with the Instrument which he calls *Trupania*, which you pierce several Times lightly; then you must dress with the Cephalick Plaister; and the

the Scales being fallen, the Party is for ever cured. This is what the famous *Archigene* hath deliver'd to Posterity touching the *Ægilops*.

ÆTIUS borrowed from *Severius*, a famous Surgeon and Oculist. The *Ægilops* (says he) is a little Imposthume at the Great Angle of the Eye. It is a Disease seldom curable, because of the Tenuity of the Flesh, when the Bone underneath is corrupted; it sends sometimes a Malady to the Eye, because of the Proximity of the little natural Holes situated in the Angle of the Eye: But when the Phlegmon begins, you must try in its Beginning to disperse it, by only putting upon the inflam'd Part the *Collyram* of *Antoninus*, with other Anodine Medicines.

THE *Collyram* of *Antoninus*. “℞ Spody
“ ʒ iij. Atrament Suter ʒ iij. Croci ʒ j. Myr-
“ rhæ ʒ iv. Meconij ʒ iv. Piperis Albi
“ gr. xij. Gum. Arab. ʒ j. all beat toge-
“ ther in Old Red Wine.”

FOR this Liniment uses to disperse the Fluxion: But if the Inflammation continues, you must try to cure it like other Phlegmons, by diaphoretick Remedies, which have an efficacious Virtue without Acrimony. For the Eye is affected, and sympathizes by sharp Medicines, and the Inflammation augments in the afflicted Part: But if the *Ægilops* be come to the Angle of

the Eye, without being broke thro' its superficial, or the upper Skin, then you must make Incision, and extirpate the middle of its Eminence with a Lancet, or with a Pterigotome, and then to engender good Flesh in the Bottom ; then dry the new Flesh, which sometimes it does, without applying of any Topicks. And that is the Reason, why in the Beginning of the Opening, we apply a *Poultice* of Lentils or Pomgranate-peels with Honey. The Place being cleans'd, and the new Flesh being come, we then continue to dress it dry, with impalpable Powder of Glass, and continue its Use till the Cure be made : For it is an admirable good Remedy. The *Alumen Scissile* is very good in fine Powder mix'd with Turpentine in the form of an Ointment ; it mundifies and engenders Flesh, and makes a solid *Cicatrice*. You must put a little of it into the Hole of the Ulcer, and apply it outwardly in the manner of a Plaister. We have now conducted ourselves with good Success, without need of other Remedies, for the entire Cure of recent *Fistula's*. The following Remedies are what the Antients pretended to cure the Disease with. The Leaves of *Camomile* chaw'd cure the *Ægilops*, if the Bone be not corrupted very far. The Leaves of *Mallows* being chaw'd, and apply'd with a little Salt, effect the same Cure : But when the *Ægilops* is open, you must apply bruis'd
Mallows

Mallows to it till it is cicatrized. *Aëtus* following the Method of the Antients, says, that the Juice of the *Ægilop's* Plant, which grows amongst the Wheat, and mix'd with Wheaten Flower; the Leaves of *Plantain* chaw'd and apply'd; Frankincense with Pigeon's-Dung mix'd together and apply'd, will grow hard, and must be left till the Parts be cicatrized. In fine, mix Frankincense with Tar, and put it on in form of Ointment; this Medicine disperses the *Ægilops* in the Beginning, being introduced into the Ulcer, and apply'd over it. It cures the *Fistula's* which are open.

MR. *Albinus*, Professor at *Leyden* in *Holland*, in his little Essay of the *Fistula*, printed at *Frankfort* on the *Oder* 1695, reports, that an Artizan being ill treated for a *Fistula Lacrymalis*, it became cancerous, and having corroded all the Bones of his Face, he miserably perish'd.

THE *Journal des curieux de la Nature d'Allemagne*, in the second Deeds of the sixth Year's Observation 32, they report a History of a *Fistula Lacrymalis*, which had penetrated the Bones of the Orbit.

MR. *Municks*, Professor at *Utrecht*, observes after *Avicenne*, that the *Cartilages* of the Eye-lids are very often gnaw'd by weeping *Fistula's*.

THE *Angular Fistula* in its Beginning, and when simple without Callosities, and

without Obstruction of the Nasal Pipe, cures very often of itself, if one takes care to empty the Matter two or three Times a Day by the Compression of the Finger. The Probe and the Injection are indispensably necessary only when there is an Obstruction in the inward Entering of the *Lacrymal Points*; or when there is a Cohesion or Concretion of the inward Part of the *Lacrymal Reservoir*: But when there is an Erosion, or Excoriation, and Ulceration, the Probe is not only useless, but is very prejudicial; then you must only make proper Injections according to the particular Case of the Malady. The Exterior Incision ought to be forborn in all these above-said Cases, because it contracts the *Lacrymalis Bag*, and spoils its Springs, by the Means of which it voids its Liquor into the *Nasal Duct*. The Incision ought to be made ly in the *Hernia*, and harden'd, where the *Lacrymal Bag* has lost its Elasticity. The *Fistula Lacrymalis* being accompany'd with the Rottenness of the *Maxillar Bone*, or with Excrescences, or fungous within side of the *Nasal Cavity*, is only the Case which requires Fire, then you must uncover the Parts, and cauterize with an Iron.

BUT first we must consider the Nature of the *Fistula*, whether it proceeds from an Evil, or Venereal Case, which cannot be cured till the Original Cause be removed.

It

It is always necessary to prepare the Patient, and that always ought to be more or less according to the Cause of the *Fistula*; for if the Matter which comes from it be but in a little Quantity, and that of a good Consistence, and there being no frequent Returns of Fluxions, then Bleeding and Purging will be a sufficient Preparative; but on the contrary, if the Humour which comes from it, excites by its sharpness frequent Fluxions on the Eye, then you must make an ampler Preparation, and correct all the Accidents, before the Undertaking of the Operation. In these Cases, besides Bleeding and Purging, it will be necessary that the Patient use an exact Regimen, which consists in not drinking of Wine; and to drink every Morning a Quart of Whey, with an Ounce of Syrup of Violets mix'd in it, and to continue it for fifteen or twenty Days. One is obliged sometimes to bathe the Patient, and to repeat often Bleeding and Purging till all the Redness be gone from the Eye; so that it would be working in vain to do the Operation while the Blood is vitiated, for it may give Occasion to a Fall of Humours on the Eyes, which may make an *Abscess*, or to draw other Accidents after it, which may be more fatal than the *Fistula*.

As to the Preparation of those which come from Eyils, this following succeeded with

with me : About five Years since I was sent for by Mr. *Parot*, who kept a Victualling-House at the Sign of the *Anchor* in *Castle-yard, Holborn*. His Daughter (being about nine Years of Age) was afflicted with a scrophulous *Ophthalmia* on her Eyes. She had been so for nine Months. Sometimes her Nose and upper Lip was swell'd. She cou'd not bear the Light; they had try'd a great many Things, with a great deal of Cost, and all in vain. I undertook to cure her, and began by giving her three Purges, which were ten Grains of *Mercurius Dulcis* over Night; and the next Day I gave fifteen Grains of *Yalop* in Powder made into three Pills. There was three Days Space betwixt each Purge. After the last Purge, I took half a Quarter of a Pint of Live Wood-Lice, and bruis'd them in a Mortar, and put into them half a Pint of Simple Mint-Water, then straining it through a Rag, and mixing an Ounce of Syrup of *Steel*, and all put in a Viol together; I gave her two Spoonfuls every Morning fasting, and to fast two Hours after it. This Method was continu'd for two Months, by which she was entirely cur'd.

As to Venereal Cases which afflict the *Lacrymal Bag*, sometimes they are taken for *Cancers*. I will here report a Case I happen'd to cure: About six Years and half since, a poor Woman having been afflicted
for

for seven Years, and by several Surgeons reported to be a *Cancer*, I being desir'd by the Surgeon who had it then under Cure, to go and see her, with another Surgeon whom he brought, (her Surgeon being tired of his Patient, she growing worse under his Hands) he carry'd us there in hopes that we wou'd make our Report as he had done, in declaring her incurable. The under Lid of her Right Eye was eat away : The Cheek of the same Side was almost gone, with Corruption of Part of the *Maxillar* Bone. The Ulcer extended by the Side of the little Angle upon Part of the Temple, and cover'd a great Part of the Forehead of that Side almost as far as the *Suture*; the Ulcer had consum'd most of the outward Membranes of her Nose, and part of the Cartilage, by eating away its Surface, (there was part of it left, but very thin) her Left Cheek was most of it eat away, and its Edges were an Inch thick. Sometimes it evacuated a great Quantity of Blood; for which reason it was reported a Bleeding Cancer. I told the Surgeon, that I thought there might be something done as to stopping of its Progress; and I told the Woman there wou'd be danger of losing her Eye, unless a speedy Remedy was us'd: She did not much mind me then, and dismissing her Surgeon, she employ'd another who gave her hopes of Cure; but he not succeeding,

succeeding, she grew worse, she partly lost the Sight of that Eye; she then sent for me. I found all the Coats of the Eye were tumify'd, and a Film separated into the inward Chamber of the Eye, and another little one separated from the *Cornea*, which fell into the outward Chamber. Having such a Complication of Sores to deal with, and the Eye being almost gone, and the Ulcer having almost touch'd the under Lid of the other Eye, I was oblig'd to begin with the most dangerous, which was the extending of the Ulcer, which had almost divided the Upper Lip from the Under. I mix'd the following Salve: I took three Drachms of Red Precipitate, and twenty Grains of Burnt Allum, and beating them into fine Powder, I mix'd them with an Ounce of *Ung. Ægyptiac.* then added two Ounces of *Ung. Balslic.* all mix'd together, with which I dress'd her. In the space of five Weeks the Ulcer was brought so little, as to be cover'd by a Crown; then finding it to be at a stand, which I judg'd was from the *Maxillar* Bone being carious; and, in order for its better Separation, I propos'd a Salivation to her. She told me, that she had been salivated several Times by internal Means without Success, which was a farther Cause that her Disease was look'd upon to be cancerous; she then being unwilling to go through it, I kept dressing the Ulcer two Months longer, without

without Success; then I told her nothing wou'd cure her but Salivation, and that by Uñction; the Woman finding no other apparent Remedy, took a Resolution; accordingly I put her in by Uñction, by which she was cured in six Weeks. Three Weeks from its Beginning the carious Part of the superior *Maxillary* Bone came away, with one of the *Dentes Molares* in it. She is one of the most disfigur'd Persons I ever yet saw, from the *Cicatrices* on her Face: It wou'd have been useless to make a Passage into her Nose, the under Lid being gone, which helps to conduct the Tears to the Great *Canthus*, and without which the Tears must fall down the Cheek.

AFTER the Patient has been prepar'd one comes to the Operation. If the *Fistula* be open, and the Opening be not sufficiently large, you may dilate it with a prepar'd Sponge, Lancet, or Bistory, according as one judges proper.

If the *Fistula* be hidden, having no *Orifice* outwardly, then you make the Incision below the Tendon of the *Orbicular Muscle*, unless the Bag which incloses the Matter makes an Eminence, and extends above this Tendon; then you must begin your Incision in that Place, and continue it downwards, the space of the Tenth of an Inch below this Tendon, by making the Incision in the form of a Half-Moon, so that the

the Convex Part be towards the Nose. If the Matter appears only below the Tendon, then you are to make an Incision with a Lancet, by beginning immediately above the Edge of the *Orbit*, thrusting the Lancet into the Bag, and dilating the Wound obliquely from the lower to the upper Part, which you continue within a Tenth of an Inch distance from the Tendon; then you put a prepar'd Sponge into the Part till the next Day, when you will be able to judge of the Disorder of the Bone, and having different Irons, some of an Oval, others of an Olive Shape, according to the Form and Extension, and Rottenness of the Bone. If the inward Fungosities give an ill Smell, then they are to be very much cauterized, and to be repeated, to absorb all its Humour, and to take off the inward Fungosities, which very often give Rise to a *Polypus*.

SOME Surgeons neither mind the Burning of the *Os Unguis*, nor the cutting of the *Orbicular Tendon*, when there is Necessity for it; as for Example, where the *Fistula* has done such Ravage in the Bones, that they cannot well be got at, without destroying this Tendon. I saw a Person, who was cured at *Paris*, (the *Os Unguis* being press'd down after cutting of the *Orbicular Tendon*) the Surgeon applying the actual Cautery nine Times, the Exfoliation following,

lowing, and the Parts were entirely heal'd; and the Tears took their Course through the new Passage. There remain'd only a large *Cicatrice* outwardly. So that the Nature of the *Fistula* is always to be examin'd. In case the *Os Unguis* is not very much damaged; then you may only make a Hole by boring through it the Bigness of a midling Quill, by which Method you will not be subject to splinter the Bone, and the new Passage will be more compact than when it is push'd in. For the pushing of it in, very often occasions the Bone to splinter, by which means there may remain some pointed Edges, which may give Rise to a new *Fistula*; for altho' the Exfoliation part, yet there may remain some Irritating Part, which will soon draw a Flux of Humours, and cause a new *Sinus*.

AFTER the *Fistula* is dilated either by Incision, and the prepar'd Sponge put into the Part, or from the Simple dilating with the Sponge; the next Day you take out the Sponge, and cleaning the Wound with a Tent, you introduce a Probe. If you take the Resolution to burn the Bone thro', you take a *Canula*, and put it over the Probe; so that the Probe goes thro' the *Canula*, and passing it down on the Bone, then drawing the Probe away, and holding the *Canula* firm, you take your red-hot Iron, and pass it immediately thro' the *Canula*,

nula, and press on the Bone. As soon as you find the Iron thro', you then draw the Iron out, and the *Canula* at the same time. If the Blood comes by the Nose, it is a certain Proof the Operation is well done; as well as when the Air comes thro' the Wound, when the Patient squeezes his Nose, and makes trial at the same time to blow it.

Y o u put a longish Tent sufficient to pass beyond the Opening of the *Membrane*, which covers the inward or inferior Part of the *Os Unguis*, and a Plaister over, with Compresses dipp'd in a cooling *Collyrium*.

I N case the upper Part of the *Maxillar* Bone be carious, then you touch it with the *Cautery* before you pierce the *Os Unguis*, and touch it three or four Times with the hot Iron. You continue dressing of it with the Tent, till you judge that the Bones are exfoliated, and there forms a *Membrane* on all the inward Circumference of the new Passage. It will be very proper to hinder the Tears from going thro' the *Lacrymal Points*, by touching them with the hot Iron before you cauterize the Bone, by which means the Flesh that comes into the new Passage will be more solid; for the Tears in course will make the new Flesh flabby, and you must cause the Tears to fall down the Cheek, till the Bones are exfoliated, and the Flesh is become a little solid.

Then

Then you scarify the Points to open them; then the Tears will take their Course thro' the new Passage, and then you must immediately close the outward *Orifice* by scarifying its Lips, and by putting a little Balsam of *Peru*, and over it a desicative Plaister, with the compressive Bandage, which must be worn Day and Night, to compress the Part; by which means you will make a solid *Cicatrice*.

THERE are weepings, which make their Sinosities in the superior Part of the Flesh of the Cheek. They are very easily cur'd, by opening them in all their Length as in other *Fistula's*, and carry off their Fungosities and Callosities, &c.

THE most nice *Fistula* is that which pierces and hollows the *Cartilage* of the Lid, and sometimes outwardly on the Edges of the *Cartilages*; these must never be open'd, but prob'd with a Hog's Bristle, the End being dipp'd in Balsam of *Peru*. The Injection is very proper to be repeated two or three Times at a Day's Distance, to cleanse the *Fistula*; but if too often repeated, the *Cartilages* will become flabby and soft, and they will rise no more.

MR. *Woolhouse* says, The Reason why our ablest and learned Surgeons do not succeed in the weeping *Fistula's*, is first because they do not entirely consume the *Lacrymal*

H

lacrimal Bag, which gives means to the Generation of a new *Fistula*, by the stopping of the Tears, which become sharp and corroding, and make a new Passage outwardly or inwardly. Secondly, The Passage for the Tears which was forced by the Cauterization closes anew by the Re-production of the Flesh in the Parts. Thirdly, They do not ordinarily preserve the Communication of the little *Lacrimal Points* open downward, to conduct all the *Lympha* into the new Passage which Art had made. Fourthly, The Communication with the inward Part of the *Nasal Conduit* being entire cut, and stopp'd by the Cicatrization. These Gentlemen ought, after their Operation of the actual Cautey, to cauterise the Mouths of the *Lacrimal Points* to hinder the Tears from entring, which wou'd absolutely prevent the Formation of a new *Fistula*.

As in the ordinary Operation there is always a flowing of Tears from the Eye fifteen or twenty Days after the Cicatrization, it is indifferent in these Cases by what Means the Tears are made, whether by the stopping of the *Lacrimal Points* outwardly, or from the inward Cauterization: But to supply all these Inconveniencies I apprehend that a little Leaden Pipe, put into the new Passage which was made by the breaking and pushing in of the Os Un-

guis,

guis, would supply in part the Loss of Substance caused by the *Fistula* ; this being a *Centeficial Canula*, which answers entirely all the above Intentions, and saves a great deal of Pain and Trouble to the Patient. This will shorten the Method of Cure by the Oculists, and certainly render the *Fistula Lacrymalis* curable, which pass'd before for incurable, or at least very suspected and doubtful. So that the ablest Surgeons were always doubtful of what they did, and never succeeded but by Chance, in taking away all the *Lacrymal Bag*, and when by great Burnings there happen'd no more Obstruction in the Artificial Passage.

NEITHER antient nor modern Authors of any Language whatsoever that ever fell into my Hands, ever furnish'd me with the least Idea of this little Invention. I don't know any Person in the World, who ever practis'd it till now ; it is infallible and comprehends all that is wanting to accomplish the Cure of this troublesome Disease, which has so perplex'd the Surgeons for these two thousand Years past and more, since the first Operation was done.

Y o u must not introduce the *Canula*, till all the little Scales of the Bones are fallen, and there remain but very little Space for the Reception of the *Canula*, for fear the said *Canula* should fall too soon ; and as

soon as you have introduced it, you must immediately close the *Orifice* by scarifying its outward Lips, and putting in a little Balam *Fioraventina*, and over it a desiccative Plaister, with the Compressive Bandage, to hinder the Thickness and Largeness of the *Cicatrice*, and sustain it a little till it is solidly form'd, and to prevent the ordinary Accidents, as well inwardly as outwardly, without squeezing the Flesh, and the opening of it; which happens very often to Persons who are too hasty in leaving off their Bandage, which ought to have a Stability on the *Cicatrice* as much at Night as by Day, to push and compress, and hold the *Canula* firm, and maintain a solid *Cicatrice*. The Patients must refrain from blowing their Nose, and taking Tobacco at the Nose, and from every other Movement which may excite Vomiting, or other parallel Accident. After the *Cicatrice* begins to be form'd, you must purge the Patient two or three Times following, if Indications do admit of it.



C H A P. III.

Of the Cataract.

S E C T. I.

TH E *Cataract* by the *Greeks* is call'd *Hypochyma*, and by the *Latins* *Suffusio*: That is, a melting or Dissolution in the Eye, of some of its Parts under the *Horny-coat* in the outward Chamber, or in the inward Chamber betwixt the *Uvea* and *Arachnoïdes*. As most of the *Ancients* have given partly the same Definition of the *Cataract*, by calling it a gathering or heaping of an indigested Viscous Humour in either of the Chambers, so we call it a *Cataract* from its weight and falling into the Aqueous Humour.

I F it is a *Pus* swimming in the outward Chamber, then we call it an *Hypopyon*; or a *Pus* in the inward Chamber, which is call'd by *Galen* *Empyosis* and *Diapyosis*. We will endeavour to find the Coats in the Eye, which can furnish us with a Pelicle or Film to make a *Cataract*.

I have found by the Dissection of Eyes Films both in the outward and inward Chamber; one was adherent to the *Arachnoides*, and another to the *Cornea*. I found a *Film* in a Horses Eye, of a yellowish Colour, which swimming in the Aqueous Humour of the outward Chamber cover'd half the Pupil. I made an Incision in the lower Part of the *Horny-coat* with a Lancet, and putting a blunt Needle into the Orifice, I drew part of it out; the other end was adherent, a little above and sideways from the Incision, and broke off almost by the Adherency: And examining the Film, I found that it was a little Pelicle, that had separated from the *Cornea*, excepting only where it stuck. The Cause was a violent Inflammation in that Coat: The Inflammation brought a Solution in the Part. Those sorts of Solutions are like Blisters which separate those Films from the Continuity; that part that is separated floats in the Aqueous Humour. If the Film had not been adherent to that Coat, it wou'd have sunk to the Bottom of the Chamber: I found it to be compos'd of Vesicular transparent Parts, capable of receiving a quantity of Fluids into them. For how a *Pus* should separate and become a *Film* or *Membrane*, cannot easily be conceived; as I shall have Occasion to shew more fully in the following Sheets.

T H E R E

THERE are Films or Pelicles which separate from the *Arachnoïdes*, in the same Manner as those that come from the *Horny-coat*; their Structure being compos'd of several little Skins one upon another, which are very easily seen by the help of a Microscope, especially toward the Edge, close by the Ciliar Productions.

ALL sort of Purulent *Cataracts* in appearance begin in the inward Chamber, from an Inflammation in the *Arachnoïdes*; which is capable to furnish them, being compos'd as I have remark'd before, of several Vesicular transparent Parcels lay upon lay, and some of its parts are Vascular, when there is a stagnated Serum which divides its continuity, and does not come to a *Pus*, but remains then like Whey, and separates in the same Manner from the *Arachnoïdes*, as a Blister divides the Scarf-skin from the Skin; which rises from stagnated Serum, without any Plaister applied to the Part. As the *Epidermes* or *Cuticula* in these sort of Blisters, some divide the Scarf-skin all of a Piece, others swell it to be as thick as two Crowns by the little lays of small Scales which cover one another and are fill'd with Serum, which causes its thickness, and are like so many little *Cistis* full of Serum.

THIS is only to give an Idea how these sorts of *Cataracts* may be formed, with-

out being certain that it is so: For it only appears to me by these Circumstances which I have remark'd from the Nature of the *Cataract*, and Structure of the Parts, and what I have perform'd. I shall speak further of it when I come to treat of a Minister's Eye with one of these sorts of *Cataracts* in it.

Doctor Quincy, in his Medicinal Dictionary says, " that the Word *Cataract* takes " its Derivation from *καταρξαω*, *confundo*, to confound, because it destroys the Sight.

ANY thing that obstructs the Rays from passing to the Fund of the Eye, must in course destroy the Sight. There are several Causes which hinder the admission of Light to the Bottom of the Eye, which some take for *Cataracts*; and as I proceed shall give an Idea of the Nature of them.

THERE is a Distemper of the *Iris* which is call'd *Diatasis*; Galen calls it *Ectasis*, or *Diatasis* and *Chalaris*; which is a Distension or Extension, or a Preternatural Excrescence, and Augmentation of the *Iris*. Mr. HEISTER in his Treatise of the *Cataract* mentions this Distemper; and it may be found in the *Philosophical Transactions of England, Mensis Februarii 1668.* page 358. Mr. LOWER, who made this Observation, was not an absolute Oculist; For it is a Distemper which happens pretty often

often to Men after strokes on the Eye: It is likewise very common to Horses Eyes; But generally occasion'd from a Rupture of the inward *Membrane* of the *Iris*, which is the *Uvea*; some of its Vessels being broke, the Blood being extravasated betwixt the *Membranes*, swells the Part and causes the Excrescence: Sometimes it stops the Hole of the Pupil that the Patient cannot distinguish Objects. It always looks blackish, because of the Colour of the *Uvea* being so, which gives it its first rise; some take these for Black *Cataracts*. As for its Operation I shall shew at the latter end of this Treatise.

THESE is a Distemper which closes the Pupil so very close that it hinders the admission of the Rays passing through. It is call'd *Synizisis*; it is caus'd from a swelling and over-extension of the *Iris*. The Parts swelling beyond their common bounds; the Edge of the *Pupil* rubs against those Parts, they fret and become raw, and those parts throwing out their little Fibrous Hooks enter into the other, and by these means the *Pupil* is kept close together. As for its Operation I shall put it after that of the *Diatafis*.

MR. *Woolhouse* says in his Papers, "that
 " within these sixty or seventy Years last
 " past, Mr. *Gassende* and *Roboult*, the two
 " famous Philosophers after *des Cartes*,
 " pretended

“ pretended that the *Cataract* was nothing
 “ else but the Opacity or Driness, or thick-
 “ ning and congealing, or loss of trans-
 “ parency of the *CrySTALLINE* Humour;
 “ and that Mr. *L'Abbe Mariot* maintain'd
 “ that Opinion some time after at the
 “ Academy Royal.

My Opinion is, that for the Generality,
 what is taken for the *Cataract*, is an Opa-
 city of the *Arachnoïdes* or *CrySTALLINE*,
 or of the *Arachnoïdes* and *CrySTALLINE*, which
 I shall shew: Sometimes the *Arachnoïdes*
 will be here and there opaque; and the
CrySTALLINE transparent, other times the
CrySTALLINE will be opaque and the *Arach-*
noïdes transparent; some never will grow
 opaque all over; then they look Grayish,
 which I call *Glaucoma*.

THERE is a sort of *Glaucoma* of the
Arachnoïdes with part of the *CrySTALLINE*
 opaque and adherent to the *Arachnoïdes*; in
 others the *CrySTALLINE* is shrunk and flatt'd
 to the *Arachnoïdes*, they look like curdled
 Milk gently broke.

I FOUND a *Glaucoma* of the *Arachnoïdes*
 in an Eye that I dissected; the *Arachnoi-*
des was here and there transparent like
 flourish'd Muslin, and in other parts opaque,
 betwixt a White and a light Blue: The
CrySTALLINE was dissolved, and an Aqueous
 Humour in the place of it. In these sorts
 of *Glaucoma's* the Persons can see indifferent
 well,

well, according to the Spaces of Transparency betwixt the Opacities.

As to those where the *Arachnoïdes* is opake, as well as the *Cryſtalline*, and that the Fibres of the *Cryſtalline* are dried, and adherent to the *Arachnoïdes*, and their Colour being here and there like a human Nail; there is but very little Succesſs to be hop'd for by the Operation; becauſe the Ciliary Productions are more ſtrongly united to the *Arachnoïdes*, and to its Ciliar Fibres; which coming from the vitreous Humour more viſibly croſs the *Arachnoïdes*, interlacing one into the other makes it like a ſtrong *Membrane*; and ſo by attempting the Operation, it very often tears ſome, and over-extending others of thoſe little Filaments, draws a Flux of Humours into the Eye, and very often an *Hypopyon* follows, or a Diſſolution of the vitreous Humour, with a Dilatation of the *Pupil*, and a *Gutta Serena*.

SOMETIMES the Ciliar Productions are ſo cloſely united to the Edge of the *Arachnoïdes*, that by attempting to couch them, the *Arachnoïdes* is ſcratch'd, by ſcratching with the Point of the Needle, ſometimes in the Middle, and ſometimes a little on one Side. Thoſe Parts ſo ſhatter'd, keep moving as the Ciliary Ligaments contract the Ciliary Productions, by the Rays of Light paſſing into the Fund of the Eye; what

what Sight they have, is but very small and confused.

IN a *Glaucoma* of the *Crystalline*, where the *Arachnoïdes* is transparent, the Flakes are most commonly large, like Clouds one upon the other, and some Parts thicker than others; there may be perceiv'd black Specks in the dark Part of some of them. Others have whitish hard Substances, like little Stones about the Bigness of a large Pin's-Head; sometimes half the *Crystalline* is concreted and petrify'd.

ALL those that are gray I call *Glaucoma's*, which I think is their proper Name, and the Operation requires great Caution.

WHEN the Opacities of the *Crystalline* are of a yellowish Gray, or of a greenish Yellow, with an Immobility of the *Pupil*, and the Patient cannot distinguish the Day from the Night, there is always a *Gutta Serena* behind. When these sorts are smooth, and there is a Movement in the *Pupil*, and the Persons can see Shades of Light, the Operation indeed in middle-aged Persons may now and then succeed; in others 'tis very dubious, because they are attended with an Opacity of the vitreous Humour.

THOSE Opacities of the *Crystalline*, which happen from Strokes or Defluxions, some are of a grayish Yellow, others of a white blueish Gray; some are smooth, and others

others heap'd together like Curds squeez'd together; the *Cryſtalline* preſſes againſt the Edge of the *Pupil*, and the *Pupil* is without Movement; for the *Cryſtalline* is waſted into a narrow Compaſs; there is very rarely Succeſs by the Needling of them. In caſe the *Cryſtalline* ſhould fall into the outward Chamber of the Eye, then it muſt be taken out by an Inciſion thro' the lower Part of the *Cornea*.

THERE are *Absceſſes* of the *Arachnoïdes*, which breaking the *Pus*, falls into the inward Chamber of the Eye, and a *Cicatrice* is left on the Part, which according to its Bigneſs obſtructs the Light; theſe *Absceſſes* make a great Opacity all over the *Arachnoïdes*, altho' they be only in one Part of that Coat. The Cauſe is from the Inflammation ſtopping the Exterior Pores; when the *Absceſs* is broke, the Inflammation begins to go off, and it clears itſelf to the *Cicatrice* left by the *Absceſs*. I have ſeen Opacities on the *Arachnoïdes* from Inflammations without ever coming to be real *Absceſſes*, by dividing ſome of their Parts. The Opacities of this ſort are never round as the *Cicatrices* of an *Absceſs*.

I HAVE alſo ſeen ſeveral *Glaucoma's* of the *Cryſtalline* from Strokes, or from a De-fluxion of Humours on one Eye, where bad Applications have brought an Inflammation on the other Eye, and generally cauſ'd a
Glaucoma

Glaucoma on the *Crystalline*, and a shrinking of the same, with a Narrowness of the inward Chamber of the Eye. A great many will couch these Sorts of *Glaucoma's*, in hopes of Success; but they tear the inward Chamber, and cause a Dissolution of the vitreous Part, with a great deal of Torment to the Patient, and Loss of what Sight they had before the Operation.

THERE is a sort of *Glaucomatick Cataract*, where the *Arachnoïdes* is engag'd with the *Crystalline*, and both opake, which is sometimes of a whitish Blue, and sometimes of a grayish Blue. It appears like Scales of a Fish lying one upon another, of a Pearl-colour, with a little Grayness betwixt the Scales. In these Sorts of whitish Gray, or blueish Gray *Cataracts*, when the *Pupil* has its dilating and contracting Movement, couching may be successful, if proper Care be taken in the Operation.

THERE is likewise another Sort of *Glaucomatick Cataract* with Vessels full of Blood, which forms a sort of *Ganglion* in the middle of the *Arachnoïdes*, and appears like little Threads interlacing betwixt the Blood-Vessels, which are *Cicatrices* in the *Arachnoïdes*. I never attempted the Needling of these Sorts of *Glaucomatick Cataracts*, for fear of an Effusion of Blood.

IN Mr. *Woolhouse's Observations* of the
Cataract, he says, " That there is a Sort of
 " moving *Cataract* within the inward Cham-
 " ber of the Eye, which does not float, but
 " adheres more or less to the inward Part of
 " the *Uvea*, which appears to contract and
 " dilate by the Assistance of the *Muscles* of
 " the *Iris*; it opens and shuts, and covers
 " the most part of the *Pupil* inwardly, al-
 " most like the winking *Membrane*, or in-
 " ward Eye-lids, which naturally cover the
 " *Pupil* outwardly upon occasion; which are
 " very common to certain Animals; and
 " which draws this *Membrane* like a Cur-
 " tain over the Globe of their Eyes, when
 " they have a mind to look at the Sun, or
 " upon any other Occasion when they have
 " a mind to preserve their Eyes against any
 " outward Accident. Dogs have these wink-
 " ing *Membranes*. Mrs. *Bretton*, (Sister in
 " the *Quinze Vingts*, at *Paris*,) has such a
 " *Cataract* in her Left Eye, and in Obscu-
 " rity the *Pupil* is almost uncover'd with-
 " out being much more dilated, and she
 " then can see pretty well; but in a great
 " Light, this Suffusion visibly extends to
 " interpose that Light, without the *Pupil*
 " closing; which uses commonly to close
 " in such Cases. This Woman came into the
 " World with these Sorts of *Cataracts* in
 " her Eyes. A certain Operator undertook
 " to Needle her Right Eye, wherewith she
 " saw

“ saw indifferently well for a few Days af-
 “ ter the Operation ; but the great Light
 “ being fatal to her, ſhe loſt the Sight of
 “ that Eye entirely in a ſhort ſpace of
 “ Time.

“ NOTHING in Nature can be more
 “ curious than theſe ſorts of *Hypochyma's*.
 “ This is the eleventh of theſe Sorts that
 “ I have ſeen; five were Born ſo, and the
 “ other fix from different Accidents;
 “ three from winds or blaſt of a Gun ; one
 “ from the ſtroke of a Branch of a Tree;
 “ and the two others after Fits of an *Epi-*
 “ *lepsy*.

IN Venereal Caſes the Eyes are ſubject ſometimes to have an opacity of the *Cryſtalline*. Several Authors have given us Inſtances of Perſons who have been Cured of *Cataracts*, at the ſame Time they were Cur'd of the Pox; and by the ſame Remedy.

MR. *Woolhouſe* ſays, “ in the *Hospitale*
 “ at *Rouen*, Mr. *Chiancereu* the Surgeon
 “ ſhew'd me a Man and a Woman, who
 “ had been Blind of *Cataracts*, having the
 “ Pox, whom he reſtor'd to their Sight;
 “ and Cur'd them of the Pox by a Saliva-
 “ tion.

IT is to be obſerv'd, that the Aqueous Humour in its natural State cannot congeal; for it is compos'd of an infinite number of Volatile Salts, which hinder
 its

its Coagulation. It has been observ'd in those Corps which have been frozen to Death, that all their Humours were frozen, whilst the Aqueous Humour has kep tits Fluidity. So by these Circumstances we may judge that the *Cataract* cannot be form'd from a fixation or coagulation of that Humour.

THERE are Accidents which happen to those who work with Quicksilver, as Guilders; or those that are for a long time employ'd in rubbing the Quicksilver upon Looking-Glasses, and those who work in Mercurial Preparations. Sometimes there enters some of the Particles into the Blood, and circulating with it, and passing into the inward Chamber of the Eye, the Aqueous Humour having no Elasticity of it self to push it forward from thence, lodge there. In the Morning as the Patient gets out of Bed they appear in one Globe; after the Eye is exposed to the Light, the Rays passing through the Pupil, causes the *Iris* to contract, and that compressing the Aqueous Humour, divides the Globe into four or five Globules, and so at Night unite again; and there remains till taken out by an Operation; which is done by making an Incision in the lower part of the *Cornea*, and with a little Ear-picker put through the Incision taking them out; and dressing the Eye with the ordinary Defensive.

I

Dr.

Dr. Mead in his admirable Book of Poisons, says of *Mercury*, pag. 109. " But
 " found once some quantity of it in the
 " *Perinæum* of a Subject I took from the
 " Gallows for a Dissection, (whose rotten
 " Bones quickly discover'd what Disease it
 " was had required the Use of it; and that
 " I suppose chiefly in external Applications
 " by Uñction) without any mark of
 " Corrosion of the Parts where it was
 " lodged.

S E C T. II.

The Signs of a Cataract.

IN its beginning the Persons see little Motes, or Bubbles, seeming to pass before their Eyes: Sometimes Objects appear double, and multiply, and interlaced with different Colours: To others the Air seemingly is fill'd with Flies, others with threads like Hair or Cobwebs, to others like Gauze or Crape; others cannot bear a hot Air, nor a great Light. They all see better in a little Light than a great one, because the Pupil dilates in a shady Place, by which means there enter more Rays. Others have appearance like Globes of Fire before their Eyes: Others by looking at a lighted Candle, fancy they see an infinity of Vibrations of Rays: Others fancy the

see an infinity of Candles for one, without being able to distinguish its Light. The Method to examine well the Structure and Growth of the *Cataract*, is to take a Card and black it, and make a Hole through the Middle of it with a large Pin, and put it before the Diseas'd Eye, and to look at the Light out of the Sun; the Patient will perceive the different shape of the *Cataract*, and by looking every three Months through it, he will perceive its growth and what progress it makes. By this means he will be able to draw the real Picture of his *Cataract*, and the Augmentation of its Opacity; at last he will be but just able to distinguish the Day from the Night, and the Movement of Objects; they will be able to distinguish lively Colours for a considerable Time, and some to the latter End; at last the Pupil will be entirely cover'd, (that is) the *CrySTALLINE* will be grown dark.

THE Cause of a *Cataract* in the *CrySTALLINE*, is the Loss of its Transparency, from the Discontinuity of the Parts, either from their Curvities, or Dissolution of its Parts into *Pus*; and sometimes the Parts concrete like a Stone; but for the Generality it is from the Curvity and Driness of them: And the Degrees of Curvity are greater or less, according to the Nature of

the *Cataract*, some ripening sooner than others.

THE Appearance resembling a Net or Nets, and seeming to float about in the Air, arise from Inflammations of the *Retina*, which cause a Relaxation in some of its Vessels ; for as they are not adherent to the *Choroides*, the Light cannot make its impression through these relax'd Parts ; and these Parts moving a little, cause those Nets seemingly to float about, but the Sight does not diminish either in length or quickness. I have known some who had these sorts of appearances many Years, without growing Blind. But if there should happen an Opacity on the *CrySTALLINE*, Blindness will follow. In case there should happen a *Cataract*, every three Months the Persons will perceive the Motes grow bigger, and at the end of eighteen Months will scarcely distinguish Objects. And in this Case the Surgeon in the inspecting of the Eye, will observe a lightish Blue in the inside of the Pupil, appearing superficially ; and must likewise consider whether the Pupil has its contracting and dilating Motion.

THE Opacity may be complicated with a *Gutta Serena*, perfect or imperfect, as I shall mention hereafter. Sometimes the Opacity begins in the lower Segments of the *CrySTALLINE*, where the Opacity appears
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of a yellowish White, and very deep seemingly as it were in the Fund of the Eye. It augments by degrees, more in some Parts than others, till all the Segments of the *Crystalline* become opake. These sorts of *Cataracts* are longer ripening than those that begin in the superior Segments, and more subject to have a *Gutta Serena* behind them; they that are of a dirty yellow Colour, are generally seven Years before they come to a ripeness to bear the Needle; and very often subject to a Dissolution of their Parts into a *Pus* (which may be very easily known by their smoothness) without any flakes in them, nor any brightness or glittering Parts. Where there is no Dissolution of the Parts, there are always flakes in the *Cataract*; from the little Fibres of the Segments of the *Crystalline* growing dryish, (except in this sort I am going to mention.)

THERE is an Opacity of the *Crystalline*, something like the other as to its yellowish Colour, which is like an old Lanthorn, but has something of a brightness in its Colour, and continues fifteen or twenty Years before the *Crystalline* grows dark all over. It is very difficult to be Couch'd, from its hard consistence and largeness in bulk. And in case it be Couch'd there is commonly an imperfect *Gutta serena* behind. And the Couching

sometimes occasions an Inflammation, upon which follows a perfect *Gutta Serena*.

As to their Colour; some are like Plaister, others are Green, some of a Leadish Colour, others of a Lemon Colour, some Yellow, others the Colour of Human Flesh, others of polish'd Copper, and some of a Porphyry Colour; which are all bad in their kind.

THERE are others which are some of the Colour of the Sea-water, some of a brownish Iron, others of a Pearl, some a Gold, others of a Cream Colour; which are more or less good in their kinds, according to the Constitution of the Patient, or from what Cause these Opacities proceed. But for the Generality all *Cataracts* of the *Crystalline* which proceed from Strokes or Defluxions have a very bad Prognostick.

M^R. *Woolhouse* in his Papers says, that the *Cataract* is sometimes Hereditary, and that he had Couch'd the Grandfather, Father, and Son; and that the Great Grandfather died Blind of *Cataracts* at *Cotence* in the lower *Normandy*. And that he had seen several Children in Families in that Town, who were Born with *Cataracts*; and that he Couch'd in one Afternoon five Children that were Born Blind, all Issue from the same Father and Mother; he began with the eldest, which was a Girl

Girl of sixteen Years of Age; he Needled her left Eye, she was took with a violent Vomiting which oblig'd him to desist from the Operation; then he Couch'd the *Cataracts* of the other four which were Boys, and all with very great Success. The poor Mother begg'd him to Couch the *Cataract* in her Daughter's right Eye, which he went to do, and unbinding the Eye he was surpriz'd to see both the *Cataracts* down, and she could see any Object.

THERE is an Opacity of the *CrySTALLINE* which is call'd a live *Cataract*, which moves up and down like Quicksilver in the Eye. It is occasion'd from a Blow or Stroke on the Eye, by which the *CrySTALLINE* becomes opaque and shrunk into a narrow compass, the *Arachnoides* remaining transparent; if there be any movement in the *Iris* which give motion to the Ciliary Productions which contract the Ciliar *Fibres* of the *Arachnoides*, which move by the least Motion, that causes it to float. These are not curable, because there is a sort of Dissolution in part of the Vitreous Humour, or its Texture is become softish, (which you may find by putting your Thumb on the upper Eye-lid; the softer you find the Globe of the Eye, the greater the Dissolution is: There is but little hope for Success where the Vitreous Humour is defective.

THERE is an Ulceration of the *Arachnoïdes*, which is not apparent to the Oculist, but very detrimental to the Patient, who cannot bear the Light, but in the Shade can see pretty well. Which I believe is from the Rays of an over-splendid Light trying to pass thro', and Nature endeavouring to defend itself by contracting the *Arachnoïdes*, that is, its exterior Part wrinkles, and hinders the Rays from passing. In case the Ulcer is but in the middle, it will occasion the same Disorder. So what was transparent to the Patient in the Shade, is opaque in a great Light by the Pores becoming curv'd. When the Ulcer is not attended with an Inflammation, the Patient will be able to bear a little Light, but then there seemingly appears before his Eyes a Thread or Hair: Sometimes two or three, according to the Number of the Ulcers. The Remedy in these Cases is to scarify the Eye every third Day, and apply the Pulp of a roasted Apple at Night, and to wash the Eye with warm Water.

SOMETIMES these Ulcers undermine, and by their corroding cause a Dissolution of the *Crystalline*, which will appear like *Pus*, and empty itself into the inward Chamber of the Eye, and sometimes into the outward Chamber, which appears like an *Hypopyon*, and must be treated like one; which I refer you to, *Chap. II. Sect. 8.*

IN

IN an Inflammation of the *Arachnoïdes*, sometimes the excretitious Parts separate a sort of Film from it ; some separate in the middle, and sticking by their Edges, press a little the inward Edge of the *Pupil* ; others by their own Weight, (when the little Fibres of the upper Part of the Film gives way,) fall down, some a quarter, some half, others three quarters, from the Hole of the *Pupil*. These are what the Antients call'd *Real Cataracts*, for they did not mention the Opacity of the *CrySTALLINE* to be a *Cataract*. There is a great Nicety in performing the Operation of these *Cataracts*, when the *Arachnoïdes* is transparent as well as the *CrySTALLINE*. If these Sorts of *Cataracts* are well couch'd, (so that the Fund of the Eye be not damag'd,) the Persons will see as well as they did before they were attack'd with them, and even read without Spectacles. I saw a Minister that had a large purulent *Cataract* in the inward Chamber of his Eye ; the upper Part of the *Pupil* was clear from the *Cataract*'s sinking a little ; it seem'd to move by the Motion of the *Iris*, and was of a large Bulk, considering the Place where it was : The Gentleman could see to read without Spectacles. If the *CrySTALLINE* had fallen from its Seat, he wou'd not have been able to read without a Convex-glass. Upon his asking me the Reason why sometimes he cou'd hardly see ;

see; examining his Eye, I found that the *Cataract* obstructed half the *Pupil*; and desiring him to look downward, I then perceiv'd the *Cataract* to cover most of the *Pupil*. He was subject to have Inflammations on that Eye; and at those Times he cou'd hardly discern Objects. As the Inflammation caus'd a Swelling in the *Iris* and *Uvea*, that made a Narrowness in the inward Chamber of the Eye, which squeez'd the *Cataract* over the *Arachnoïdes*, and obstructed his Sight; if the *Pus*, or wheyish *Serum* had not been contain'd in a *Cystis* or *Cystises*, it must have come thro' the *Pupil*; for there can be no Fibres in *Pus*, when once separated into the Chamber of the Eye. For it is very often found that the Formation of *Membranes* in the *Vesicular Hydropsy* is rather a Dividing or Extension of those little Lays of small Scales already form'd, which being fill'd with a thickish *Serum* like a *Pus*, forms these sorts of *Cataracts*. They most commonly begin with an Inflammation in the Eye; sometimes it happens that the *Arachnoïdes* is defective, which I shall mention when I come to answer Mr. *St. Yves* about his membranous *Cataracts*. I told the Gentleman, that the *Cataract* kept pressing against the *Uvea* and *Arachnoïdes*, and wou'd irritate and cause a Defluxion, and endanger the Bursting his Eye; and the only Remedy was to make
an

an Incision on the lower Part of the *Horny-coat*, and with a fine Pair of Forceps to take it out : But as I never after saw the Gentleman, I know not what became of his Eye ; his other Eye had been bursted by an *Hypopyon*, so he had but that Eye to depend on.

THERE are Opacities of the *Cryſtalline* which happen from Strokes; ſometimes two Days after the Accident, the Patient cannot ſee Objects; and the *Cryſtalline* very often falls into the outward Chamber of the Eye; then the Operation muſt be performed by making an Inciſion in the lower Part of the *Cornea*, as I mention'd before, or elſe the opaque Body will keep irritating, and cauſing a Flux of Humours endanger the Loſs of Sight by Burſting the Eye. I never intend to needle Opacities of the *Cryſtalline* that proceed from Strokes. Sometimes, and very rarely, they drop of their own Accord into the Bottom of the inward Chamber of the Eye; then Nature couches, and lays them in the ſame Place, as if they had been put there by a Needle.

MR. St. Yves, p. 252. speaking of the membranous *Cataract*, says, "It is what follows *Ophthalmia's* of the *Coroïdes* and *Uvea*, that their obstructed Vessels spue a whitish *Pus* into the aqueous Humour; and this *Pus*, by its Viscosity sticking to the

“ the Circumference of the *Pupil*, appears
 “ there like fine Cloth.

“ WHEN there is no great Quantity of
 “ Matter, it does not close entirely the *Pu-*
 “ *pil*. If the Defluxion goes off before it
 “ has damag'd the Fund of the Eye, it
 “ leaves sufficient Passage for the Light to
 “ make Impression; which is the Reason
 “ that the Patient sees a little, but the
 “ Sight is weak.

“ IF on the contrary the Fluxion commu-
 “ nicates with the Fund of the Eye, and
 “ destroys the Action of the Fibres by
 “ which the Spirits are brought to the Eye,
 “ the Sight is lost. I had the Experience
 “ in Mr. *de Vilvaude*, who having had a
 “ violent Fluxion on his Eyes; one perish'd
 “ by an *Abscess*, and the other was attack'd
 “ with a membranous *Cataract*, by which
 “ he lost his Sight. Mr. *Woolhouse* promis'd
 “ him to make him see by couching his
 “ *Cataract*; the Patient came, and consult-
 “ ed me upon it; but observing that the
 “ *Cataract* was complicated with a *Gutta*
 “ *Serena*, I assured him that the Operation
 “ would be of no use to him.

“ HE persisted notwithstanding to engage
 “ me; but being in no hopes of Success, I
 “ would not undertake it, but in Presence
 “ of another Oculist. He sent for Mr. *Bail-*
 “ *ley* Senior, who in complaisance to the
 “ Wishes of the Patient, said, that if the
 “ Operation did not restore his Sight, it
 “ would

" would do no harm to his Eye. I there-
 " upon began the Operation in the Presence
 " of this able Oculist. The *Cataract* being
 " well depress'd, we presented to him Ob-
 " jects, but he cou'd not see any of them,
 " altho' the *Pupil* appear'd very clear.

" WHEN the Fund of the Eye is not
 " damag'd, there remains certain Openings
 " in the *Cataract*, which permit the Patient
 " to see: Of this I have two Examples. A
 " Woollendrapier of the Town of *Beauvais*
 " came to *Paris* to be cured of a Fluxion
 " on his Eyes, which had continu'd a con-
 " siderable Time, and hinder'd him from
 " distinguishing Objects, because there was
 " a whitish Liquor placed in the Hole of
 " the *Pupil*. After fifteen Days, the Fluxion
 " ceas'd, and his Sight began to return a
 " little, because the Matter which was in
 " the Hole of the *Pupil* spent itself, and by
 " little and little the Patient cou'd see to
 " read. His Sight however remain'd weak,
 " because the *Iris* was curb'd by a Part of
 " that whitish Matter, leaving but little
 " Space for the Rays of Light to enter the
 " Eye.

" THERE is also another Sort of Effu-
 " sion of whitish Pus into the aqueous Hu-
 " mour, which places itself behind the
 " Hole of the *Prunel*, and stays there till
 " the Fluxion ceases. I saw this Case in
 " the Person of *Monf. de Lomery*, who
 " having

“ having a violent Fluxion, of which I
 “ cur’d him in the Year Seventeen hundred
 “ and Thirteen, cou’d not see at all of the
 “ diseas’d Eye. One might perceive behind
 “ the Hole of the *Pupil* a sort of purulent
 “ *Cataract*, which having acquir’d a cer-
 “ tain Consistence fell to the Bottom of the
 “ Eye, with which he saw very well after-
 “ wards.

“ IT appears from these Examples, that
 “ the membranous *Cataract* is placed in
 “ three different Places. 1. When it seizes
 “ entirely the *Prunel*, and is adherent to
 “ the Circumference of the Hole. 2. When
 “ the *Cataract*, altho’ adherent, stops only
 “ a Part of the Hole of the *Prunel*. 3. When
 “ the Matter that forms it, swims in the
 “ aqueous Humour behind the *Iris*, with-
 “ out sticking to it; and when the Fluxion
 “ ceases, it commonly precipitates itself to
 “ the Bottom of the Eye; and if it sticks
 “ behind the *Prunella*, it makes a mem-
 “ branous *Cataract*.

“ ONE may know, by what I have been
 “ saying, that I admit of membranous *Ca-*
 “ *taraets*, which are the Effects of *Abscesses*
 “ form’d in the *Coroïdes*, or in the *Uvea*,
 “ the Matter of which empties itself, and
 “ falls into the aqueous Humour. The
 “ most liquid Part of the Matter so fallen
 “ mixes itself with the aqueous Humour;
 “ but the more solid Part gathers together,
 “ and

“ and fettles in the different Places above-
 “ mention’d. If this Matter remains placed
 “ behind the *Iris*, it makes a *Cataract* like
 “ a *Membrane*, without any Alteration of
 “ the *Cryſtalline*. And this is what I call a
 “ *Membranous Cataract*. One need not
 “ doubt of the Succeſs of the Operation
 “ in theſe ſorts of *Cataracts*, when the
 “ Fluxion which caus’d the *Absceſs*, has not
 “ deſtroy’d the Eſſential Part of the Sight ;
 “ which yet happens but very rarely. It
 “ is likewise very rare to meet with a *Ca-*
 “ *taract* of this ſort ; and it is for that rea-
 “ ſon, that I hold moſt *Cataracts*, which
 “ ſucceed by the Operation, to be an Alte-
 “ ration of the *Cryſtalline*.

“ THEY who maintain that none but
 “ the membranous *Cataract* ſucceeds by the
 “ Operation, have not yet given us any con-
 “ vincing Proof of the Fact. If they had
 “ open’d an Eye, and found the *Cryſtalline*
 “ in its entire State, after the Death of the
 “ Perſon who had been couch’d for a *Cata-*
 “ *ract* of this Nature, and had ſeen after
 “ the Operation, and whoſe *Cryſtalline* had
 “ been found without Alteration, they
 “ wou’d have ſome ſort of Foundation to
 “ maintain their Opinion, and would juſtly
 “ have challeng’d our Affertion, if they
 “ had ſhewn ſeveral Experiments of this
 “ Fact well attested. All they have given
 “ us is only the Diſſection of ſome Eyes,
 “ with

“ with membranous *Cataracts* in them, on
 “ which no Operation had been made:
 “ Whereas the contrary Opinion, which
 “ maintains that almost all *Cataracts* come
 “ from an Alteration of the *CrySTALLINE*,
 “ are supported by many unquestionable
 “ Experiments made on the Eyes of se-
 “ veral Persons, who had undergone the
 “ Operation, and saw afterwards to the
 “ Time of their Death; and their Eyes
 “ being open'd after their Decease, the
 “ *CrySTALLINE* was found couched together
 “ with the *Arachnoïdes*.

“ T H E R E have also been several Ex-
 “ periments made on Persons, who had
 “ lived many Years after the Operation
 “ of couching their *Cataracts*. The Body
 “ which had been carried down, having
 “ passed thro' the Hole of the *Pupil* into
 “ the anterior Chamber of the Eye, had
 “ been taken out by making an Incision
 “ in the *Cornea*, and upon Examination
 “ of it, it was found to be the *CrySTALLINE*
 “ that had pass'd thro' the *Pupil*, the
 “ Persons having afterwards seen perfectly
 “ well to read with *Cataract* Spectacles.

M R. *St. Yves* does not tell us, by what
 tokens he knew there was a Complication
 of a *Cataract* and a *Gutta Serena* in the Eye
 of Mr. *de Vilvaudé*, to whom Mr. *Woolhouse*
 promised to restore the Sight by Couching
 the *Cataract*.

T H E

THE Reason why in the Membranous *Cataract* of the Woolen-draper of *Beauvais*, after the Fluxion was gone off, his Sight remain'd weak, was because the *Iris* was bridled as Mr. *St. Yves* says, by a Part of the whitish Matter. Now those Bridles, in my Opinion were the Opacities of the *Arachnoïdes*, which he took for Membranes, arising from a *Pus*. I believe if he were to survive the Woolen-draper and to open his Eye after his Decease he wou'd find it so.

As Mr. *St. Yves* admits of a superficial Abscess of the *Crystalline*, pag. 329. and that this *Cicatrizing*, the *Cicatrice* leaves an Opacity according to the space of the *Abscess*; it is very likely that in this Gentleman's Case the *Arachnoïdes* was inflam'd as well as the *Choroides*, and *Uvea*; and that although there was no evident *Pus* to be seen; at first, there was a very great Opacity all over the *Arachnoïdes*; and some of the Pores of the *Arachnoïdes* being more distended than others, they admitted a greater quantity of *Pus* into their Pores; and the *Pus* dropping into the Aqueous Humour, the Inflammation diminishing, the Opacity increas'd, where the Pores were most extended, and they were the *Cicatrices* in the *Arachnoïdes* appearing like a Web, which he took for Bridles cross the *Iris*. I admit, that the Inflammation on

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the *Uvea* at the same Time swelling to a large extent, and one Part rubbing against the other, causes them to fret and become raw, or divested from Part of their upper Coats; and the little Fibrous Hooks interlacing one into the other, may join the *Arachnoïdes* to the *Uvea*, and part of the Pupil; by which it hinders the Movement of the Pupil. There is a larger Space betwixt the *Iris* and *Cornea* than betwixt the *Uvea* and *Arachnoïdes*; and I have very often seen the *Iris* adherent to that Coat, which I have mentioned in speaking of the *Abcesses* of the *Iris*.

ALL this Gentleman's Membranous *Cataract* in my Opinion are Opacities of the *Arachnoïdes*, some at distances, others all over; and there are degrees of Opacity according to the Extension of the Pores replenish'd with *Pus*. The *Pus* over-extending the Pores, these after Excretion *Cicatrizing* become more dry and opaque.

MR. *St. Yves*, pag. 254. says, "when the Fund of the Eye is not damaged, there remains certain Openings in the *Cataract* which permits the Patient to see.

It is not the Fund of the Eye which causes the Openings in the *Cataract*, but the Nature of the Opacity. The Openings are where the *Pus* has not extended the Pores to that degree as the others are, so that the Spaces are transparent after the Defluxion

Defluxion is gone off, and admit the Light to enter betwixt the Opacities, in the same Nature as it passes through a coarse Muslin. 'Tis impossible it should be the *Pus* which remains sticking there ; for the Excretion of the Parts themselves wou'd have separated it. It is from the Solution in the Continuity of the Parts, here and there, that the *Pus* is divided, and these *Cicatrizing*, cause the Opacities, which he takes for a *Pus* sticking there, and becoming Membranous. There must be some sort of *Cystis* to contain the *Pus*, or else it wou'd fall through the Pupil into the outward Chamber of the Eye, unless Mr. *St. Yves* can find Bridles to contain it all together.

THERE may be a *Film* separated from the *Arachnoïdes*, as well as from the inward Blades of the *Cornea*, which I have found in my Practice. But how a *Pus* which is separated can become Membranous I cannot conceive.

As to all Opacities in the *Arachnoïdes* or in the *CrySTALLINE*, in their beginning we ought to try to disperse them, by Bleeding, Blistering and Purgings, and those are to be repeated if there be occasion.

Mr. *Woolhouse* says in his Papers " I cur'd a Gentlewoman of two *Cataracts* " in their beginning with two Doses of "*Pillæ cochæ* ; and I have been assur'd by

“ several Persons that there was at *Paris*
 “ about thirty Years since, an Oculist
 “ call’d *la Grey*, who Cur’d all sorts of
 “ *Cataracts* which had not pass’d six
 “ Months growth, by boldly applying a
 “ Blistering Plaister upon the Eye, under
 “ the Eye-lids, for twenty Hours space,
 “ and that the Patients were rais’d up in
 “ their Beds. But this I never tried my
 “ self.

For my part I think it may be done
 without damaging the outward Membranes
 of the Eye.

I have seen Blisters on the *Horny-coats*
 of the Eyes of two Persons in Malignant
 Fevers, which went off without leaving any
 evident Opacity. I have observ’d in violent
Ophthalmies, that the fine Membrane which
 covers the *Horny-coat* has been extended to
 the thickness of a Six-pence, and yet by
 proper Application the Persons have seen
 very well. For as the volatile Parts of
 the Flies give a Fluidity to the stagnated
 Juices of the *CrySTALLINE*, they remove the
 Obstruction, and then the Opacity goes off
 in course. If there happens an Inflamma-
 tion after the putting a Blistering Plai-
 ster on the Eye, Bleeding, Blistering and
 Scarifying, and then washing it with warm
 Water and applying the Pulp of a roasted
 Apple at Night will take it off.

THOSE

THESE *Cataracts* which begin with Inflammation on the Eye scarcely ever succeed by the Operation of Couching; because the Vitreous Humour is sometimes opake as well as the *Crystalline*; and at other times there is a Dissolution of that Humour, or its Texture is grown softer; and sometimes the *Arachnoïdes* is adherent to the *Uvea*, sometimes there is a *Gutta Serena* perfect or imperfect. The *Gutta Serena's* perfect accompanying a *Cataract* may be very easily known, the Patient cannot distinguish the Day from the Night; and generally the Pupil has no movement, sometimes it is contracted, at other times 'tis dilated. The imperfect is, when the Pupil has a Movement, sometimes half, sometimes a quarter, and then the Patient can see shades of Light, or a glimmering more or less. The Pupil may lose part, or most of its Movement, by being adherent to the *Arachnoïdes*, or to the *Cornea*; or from its being over extended by any Tumor, by which the *Fibres* of the *Iris* lose their Elasticity without having a *Gutta Serena* behind the *Cataract*. It happens sometimes that the Operator succeeds in the Couching of it. But then there follows a *Gutta Serena*, by the too great Light rushing through the Pupil into the Fund of the Eye, for want of the Movement of the *Iris* to break part of the Rays; and at

other Times the Operator is not able to couch it, but tears the *Arachnoides*, and very often an Inflammation follows, and generally ends with a *Gutta Serena* perfect.

As there are different Sorts of *Gutta Serena's*, I intend to mention a little touching their Causes. The antient *French* Physicians call'd it *Gutta Maurequine*, from the *Greek* word *Amaurosis*, which is the Oppression, Affliction, Astriction, and Constipation of the *Thalamies*, or Chamber of the *Optick Nerve*. See *Galen* of the *Symptomatical Causes*, in his first Book, of what was found in opening the Brain of those who died with a *Gutta Serena*; sometimes they found that the *Optick Reservatories* were compress'd by hard Tumours of different Natures; sometimes like a Stone, at other Times wither'd and dry'd; sometimes *Hydropick* full of Water, and other Times softish and flabby, some had *Phlegmons* and *Schirrosities*, and *Abscesses*; at other Times an entire melting of the Brain, which is call'd *Hydrocephalon*, or *Dropsy of the Brain*, which *Hippocrates* makes mention of in his little Essay of *Vision*, for which he orders the *Trepan*.

THE late Cardinal *Bouzi*, and the Marquis *de Hospital*, two famous Mathematicians of the Academy-Royal of Sciences at *Paris*, being blind each of them of an Eye,

Eye, after their Decease their Skulls being open'd, the *Optick Nerves* of that Side of the diseased Eyes were both corrupted.

It has likewise been observ'd, that in opening the Skulls of some Persons who have dy'd light-headed, there has been found a great Inflammation of Blood, and *Abscesses* which have produced the same Effect; and in others, that the Brain has been found diminish'd, and very much alter'd.

Mr. *Woolhouse* says, that he assisted at the Opening of the Skull of an *Irish Knight*, who dy'd of an *Apoplexy*: After he had cur'd him of a *Gutta Serena*, or entire Blindness, so that he saw very well in the Day; but when Night came he was entirely blind; (which sort of Blindness is call'd by some Authors *Hemerilopia*;) there was found a brown vitriolated *Serum* extravasated in the *Ventricles* of the Brain, and the Brain was found soft and flabby. The *Optick Nerves* seem'd entire, but were very much extended, and harder than ordinary. The *Glandula Pinealis* was almost petrify'd and friable, and wou'd crumble like Cheese. The Gentleman had been afflicted for several Years with a violent Pain in his Head, after he had pass'd thro' a Salivation for some Venereal *Herpeses* which he had on his Face, which Salivation carry'd off that Indisposition: But this last Indisposition of

his Blindness was generally imputed to the ill Management of the Salivation.

THERE are several Sorts of *Gutta Serena's*, some are imputed to the different Parts of the Brain, others to different Parts of the Eye.

First, TO the different Parts of the Brain, which are defect'd or disorder'd from any Cause ; and, for example, after the *Crisis* of a Malignant Fever, after a Fit of an Epilepsy, or Apoplexy, or from Blows or Strokes on the Head, with Fractures, and beating in of the Skull : Sometimes from scrophulous Cases, sometimes from Venereal Distempers, which cause a *Gutta Serena*, by an Intemperance of the Brain, either cold and moist, or hot and dry.

Secondly, TO the different Parts of the Eye ; there are different Diseases of the *Optick Nerve*, and of the *Retina*. The Moderns call these Sorts of *Gutta Serena*, an Obstruction or Palsy of the *Optick Nerve*. The *Greeks Amaurosis* and *Emphrasis* : The *Latins Gutta Serena*, which is an Interception or Interruption, and Stoppage or Opilation of the *Optick Nerve*, or the *Parus Opticua Galeni*, that is, when the Sight is entirely lost, without any apparent Defect in the Eye. Mr. *Mery*, *Brisseau*, and *Heister*, with other Modern Authors say, that

that in a *Gutta Serena* there is a Dilatation or Immobility of the *Pupil*; for the Dilatation of the *Pupil* is sometimes a separate Accident from a *Gutta Serena*. The Antients call'd this Disease *Mydriasis*, which is a preternatural Extension or Expansion of the Black of the Eye, (which is call'd *Pupil*) with Immobility or Slowness, and Loss of the Springs of the *Muscles* of the *Iris*. But in the simple *Gutta Serena* there is an alternative Movement of the Expansions, and closing of the Hole of the *Iris*. And the most expert are very often mistaken by judging the good Eye for the defect'd; (that is) to be blind instead of the other. So the Oculist is very often subject to be disgraced and reproach'd for being ignorant in his Art; for the generality, almost all the Signs Authors have given us are very precarious.

WHAT lead a great many of our Modern Authors into the Notion of black *Cataracts*, and that in all *Gutta Serena's* there is no Movement of the *Pupil*, we may suppose was a Notion taken from some of the Antients; for *Benerenutra Grassus*, *Sutelamus* in his Treatise of *Distempers of the Eye*, *Galatius Ptolomius*, &c. and all the *Arabian* Physicians have describ'd it a Descent of Water, or *Descensus Aquæ & Suffusio & Gutta Obscura*, all sorts of Fluxions of the Eye: So that they commonly nam'd

an Obstruction of the *Optick Nerve*, a *Drop of Water*, or a *Cataract* stopping the *Optick Nerve*, (the Eye appearing clear and well, and sometimes they said it was a *Suffusion* of all the Eye; and it is from thence that others had their first Notion of giving the Name of *Black Cataracts*, or *Suffusion* to these *Gutta Serena's*, which have a *Dilatation* of the *Pupil*. The Moderns which speak of *Black Cataracts* are Mr. *Antoire*, *Maitre Jan*, and Mr. *Heister*. As for my part, I never met with a real *Black Cataract*; but have found black *Specks* in the *CrySTALLINE* of Eyes, which I have dissected.

MR. *Woolhouse* says, that Mr. *Brisseau* is very much to blame in calling a *Gutta Serena* a *Melting* or *Dissolution*, and *Colliquation* of the vitreous Humour; for we have daily Experience that *Gutta Serena's* are of another Nature; and this Name is no ways suitable to a *Dissolution* of the Continuity of the vitreous Humour, because in this Accident the *CrySTALLINE* Humour is always opake, and the Eye grows less, and is softish, and which is not found in any Part of the Brain, or in the *Optick Nerve*, being imperceptible outwardly.

I HAVE found Mr. *Woolhouse's* Words true as to the foremention'd Case. I saw a Man who had his Eye softish, (so I judg'd there was a *Dissolution* of the vitreous

treous Humour) there was an Opacity of the *Crystalline* of a yellowish Colour, and he could discern the Day from the Night, and the Eye was considerably lesser than the other; he had a *Cataract*, by the Colour of which I judg'd it to begin with an Inflammation; he confirm'd me in my Opinion, and told me that he turn'd his Head of a sudden, and unfortunately rubb'd it against the Brim of a Man's Hat, which occasion'd a violent Inflammation, which brought by degrees an Opacity in the *Crystalline*, and Colliquation of the vitreous Humour, for want of proper Applications at first, as scarifying and fomenting with warm Water, which wou'd have infallibly cur'd him.

I saw a Man at *Paris*, that had a *Gutta Serena* in his Right Eye, with a very good Movement of the *Pupil*; and a Child at *London* that had a *Gutta Serena* in his Eyes, with a seeming preternatural Dilatation of the *Pupil*: But when his Eyes were expos'd to the Light of the Sun, the *Pupil* contracted, and had but a very slow Motion; he could not perceive the least Glimmering. Sometimes there may be a Palsy in the nervous Branches of the *Iris*, which hinders the Movement of the *Pupil*, and the Fund of the Eye not damag'd. There have been outward Accidents, as I have mention'd before, which by wounding the

the *Iris*, the *Pupil* has lost its greatest Movement, and sometimes contracted; but these cannot be call'd a *Gutta Serena*, because the Person sees very well.

A *GUTTA SERENA* perfect, seizing one Eye without any Pain in the Head or Eye, it will be impossible to know it, in looking on the Eyes, they being open. But in closing the well Eye, the *Pupil* of the diseased Eye will dilate, altho' expos'd to the Light, and remain in that State till the well Eye is open; and then the *Pupil* of the diseased Eye, which was dilated, will contract like that of the well Eye, of which it borrow'd its Movement. When there is a *Cataract* accompanying a *Gutta Serena* perfect, there is no Movement of the *Pupil*, as I spoke on once before; and for the generality, they are attended with Pain.

GALEN, in his *Anthra Cosis*, (in his *Introduction* says) it is an Inflammation and Distension, and Stuffing of the Blood-Vessels which are round the *Optick Nerve*, which makes an Interception of the Sight, or a sort of *Gutta Serena*, by compressing or constricting of the same *Optick Nerve*.

THE *Cataplexia* of the Eye which *Hippocrates* speaks of, is when the Eye has lost all sort of Movement, and Sensation of Light; which happens in Epilepsies, and in great Surprizes and Frights. Some call this Accident *The Conick Movement*, which

is the *Parrexia* or *Helcosis*, and Abruption, Precision, or Ulceration, and Solution of the Continuity of the *Optick Nerve*, caused from a Stroke, Wound, or sudden Fall of Humours or Apostimation. *Aristotle* and *Galen* make mention of this Accident, caus'd by a Wound on the Temple, saying that the Patient had his Sight extinguish'd on the Spot like the putting out of a Candle. In these Cases at first the Eye swells out like as it were suspended, and a few Days after it sinks into the *Orbit*; then the *Conjunctiva* begins to inflame and grows thick, and wrinkles, and becomes like a preternatural Excrecence.

THE *Peremptosis*, *Galen* makes mention of in his *Introduction*, inscribed by him in these Terms: The Coincidence is, when the *Optick Nerve*, or any one of its nervous Filaments are torn, melted, and endamaged, and then closes and heals; those Persons see with a great deal of Pain and Trouble: Sometimes they see but half the Object, other Times it seems divided in an extraordinary Manner, according to the Degree of Disorder in the *Optick Nerve*; these are call'd *An imperfect Gutta Serena*: Sometimes they are accompany'd with a *Cataract*. There is another sort of imperfect *Gutta Serena*, which is caus'd by a Palsy on part of the *Optick Nerve*.

THE

THE *Symtosis* of *Galen*, or the *Symptomasis*, is a Collaption, Compression, Flabbiness, or Narrowness of the said *Nerve*, which is affected by Driness or Atrophy. *Hippocrates* makes mention of this Disease very often.

I KNOW but one sort of *Gutta Serena* curable, which is the *Anthracosis* of *Galen*.

MR. *Woolhouse* says, " I cur'd a young Woman that had been blind for three Months, which had had the Benefit of Nature stopp'd for five Months, with a great Weight in her Head, and Beating of the *Arteries* of the Temples. I had eight Ounces of Blood drawn from her Arm the first Day, and a Pound-weight the second Time from the Jugular Vein, and her Sight came whilst the Blood was running.

MR. *St. Yves*, p. 342. says, " Twelve Years since a Country-Curate of the Diocese of *Paris*, came and consulted me a few Days after he had been attack'd with a *Gutta Serena* in one Eye. I gave him a Vomit the first Day; the next Day I had him blooded in the Neck; two Days after, having taken a second Vomit, his Sight began to come, and continu'd more and more by holding his Eye over warm Spirits of Wine.

Pag. 346. he says, " I have cur'd several
 " Persons afflicted with imperfect *Gutta*
 " *Serena's*. I will here instance one Exam-
 " ple, because of its Singularity : About
 " eleven or twelve Years since a Canon-Re-
 " gular of *Rheims*, came to *Paris* to con-
 " sult me : I perceiv'd that one of his Eyes
 " was seized with an imperfect Palsy. There
 " was a Dilatation of the *Pupil*, which had
 " about a Quarter of its constricting Move-
 " ment ; but I was very much surprized,
 " when he told me that in looking into a
 " Book with his well Eye shut, he could
 " perfectly see the Representation of his dis-
 " eased Eye. The first Idea I had of this
 " young Canon was to believe him Hypo-
 " condriacal ; but to assure myself of the
 " Truth, I desir'd him to close his well
 " Eye, and to look into a Book ; then
 " I ask'd him what he could see on the
 " Page ; he answer'd me that he perceiv'd
 " the Lines like Black Rays, without distin-
 " guishing the Letters, and that in the
 " middle he cou'd see the Representation
 " of his Eye. I desir'd him, since he assur'd
 " me that he saw his Eye, to tell me what
 " Colour his *Iris* was, and the Disposition
 " of certain Rays which cross it ; he an-
 " swer'd me so just, and represented it so
 " well, that I cou'd not see it better in his
 " Eye myself. This young Canon was cur'd
 " in thirty Days by the Use of Purges, and
 " cooling

“cooling Broths, and spiritous Applications
 “on his Eye. He perfectly saw to read with
 “that Eye, without any Appearance of
 “false Representations.

“Mr. *Petit*, of the *Academy of Sciences*,
 “assur’d me, that he had seen the same
 “Disease.”

I HAVE just run over slightly the Cause
 of a *Gutta Serena*, to give a little Idea of
 them, and intend to finish them with some
 Remarks on Fractures of the Skull, which
 sometimes cause an imperfect *Gutta Serena*
 accompanying a *Cataract*. But before I
 proceed to that, I shall mention something
 of the Diseases of the *Retina*.

MR. *Woolhouse*, speaking of the *Reticu-
 lar Membrane* of the Eye, says, it ought to
 be very thin and soft; but it has been found
 to the contrary, by being callous and almost
 cartilaginous, or like a Piece of Parchment
 or fine Leather. Many People who have
 died blind, their Eyes being open’d, this
 Sort of Disease has been found in them.
 This Distemper is call’d in *Greek*, *Puenôtes*
 or *Schirrofis*: But the Gentleman does not
 tell us, whether the Persons had any Glim-
 mering or no.

HE also mentions the *Arartes*, that is
 to say, Tenuity or Thinness of the *Retina*,
 which hinders the Patient from looking on
 light Objects. And that the *Retina* is very
 often displaced from different Accidents.

It

It is very often wrinkl'd, and relax'd and useleſs to the Sight, which is call'd *Atonia-dula* of the *Retina*: And there is a Solution of the Continuity, and Tearing or Rupture, and Ulceration of the *Retina*, which happens after great Inflammations. And in ſpeaking of the *Choroïdes*, ſays, it is to be obſerv'd, that a great many white Rabbits have their *Choroïdes* almoſt the ſame Colour of other Animals *Retina*: They cannot well ſuffer a great Light. There is a whole People in the *Ethere* of *Darient*, which have their Eyes of the ſame Formation; which are blind in the Day, and ſee perfectly well at Night, like Savage Beaſts. It muſt be, that *Hippocrates* and *Pliny* had known ſome People of the ſame kind, becauſe they make mention of theſe Symptoms, and call it *The Day-Blindneſs* and *Night-Seeing*, by the Name of *Nyctalopia*. Mr. *Woolhouſe* ſays, that the Counteſs of *Remiremont* in *Lorrain* was ſo from ſome Quickſilver, which had paſs'd thro' the *Arteries* into the Capacity of the aqueous Humour, and appear'd there like little Ulcers under the *Horny-coat*, which arriv'd from the Uſe of a Quickſilver Girdle, which was improperly order'd her for an inveterate Itch.

IN thoſe ſorts of *Cataraëts* which begin with Inflammations, the Patients muſt be blooded in the Jugular Vein, and bliſter'd

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and scarified every Day till the Inflammation is got off, and then continue washing their Eyes with warm Water, for several Months, to open the Pores, and help a Fluidity. After the Inflammation is gone, they must be purg'd with *Pill à Cochiae* once a Week, and take Wood-lice every Day, except the Days they take the Physick. They are to begin with six and thirty Wood-lice, and augment two every Day till they come to a hundred and thirty. In case they should work too much by Urine, the Patient must stay two or three Days without taking of them.

If the *Pill à Cochiae* be not efficacious they may take ten Grains of *Mercurius Dulcis* over Night, and twenty Grains of *Pill Ex Duobus* in the Morning, once a Week, with the Continuation of the Wood-lice, and fast two Hours after them. I have known these Things succeed well in these Cases.

THERE are Opacities in the *CrySTALLINE* of Persons which proceed from Old Age. Their *CrySTALLINE* appears of a lightish blue, opaker in the middle, than in the Circumference with good Movement in the *Pupil*. Such Persons can see pretty well. These Opacities arise from the Curvity of some of the Pores. I have known some who had been so for many Years without growing blind, by reason that some of the Pores of their

their *Cryſtalline* not being ſo crooked as others, admitted a ſufficient Quantity of Rays of Light to paſs to the Fund of the Eye. Washing their Eyes with warm Water, for a quarter of an Hour every Morning, will hinder this Curvity of their Pores in ſome Degree, and very much help their Sight.

THOSE *Cataracts* of the *Cryſtalline* which follow Fractures of the Skull never ſucceed by the Operation of couching; an imperfect *Gutta Serena* attends them, as may be known by the *Pupil*; of which I ſhall here bring an Example: About ten Years ſince I was ſent for to a Man at *Workſop* in *Nottinghamſhire*, who had receiv'd a Stroke on the ſuperior Part of the *Os Parietal.* of the Right Side within an Inch and half from the *Sutura Sagittalis*, and about two Inches from the *Lambdoidal Suture*, from one of General *Evans's* Dragoons, with the upper End of a Pair of Tongs weighing about eight Pounds. The poor Man fell down, and lay there nigh an Hour before he came to his Senſes: Being ſent for the next Day, I found a large lacerated Wound about three Inches long, and the Skull uncover'd about an Inch. I blooded him, and I dreſs'd the Part, the next Day there came a fætid thin Matter; the Weight and Pain of which he had complain'd, was diminifhed. At the ſixth Day, I found there came a greater

Quantity of *Pus*, which gave me cause to suspect a Hollowness; examining the Wound with my Probe, I found one of about two Inches long upwards from the middle of the Part that was uncover'd of the Skull. I made an Incision to the end of it, which reduc'd it to the Shape of a T, so that there was room enough to apply two or three Trepanns in case of need. The exterior Wound digested very well: But finding that there came a great Quantity of thin Matter thro' the fractur'd Bone, I kept him low in Diet. At the end of twenty Days there came out a Splinter of the Skull about one Inch long separated from the *Diplœ*. About eight Days after that, there came three Splinters more. When he complained of any Pain or Weight in his Head, I blooded him, which carry'd off the Symptom. At eight Weeks end there separated a Piece thro' all the Substance of the Skull, about an Inch and half long, and about one Inch and a quarter broad. I found the *Dura Mater* very sound. In case that the Bleeding had not taken off the Pain and Weight, I should have been oblig'd to have trepann'd him, in order to make way for the Matter. After the great Piece of Bone came away, in dressing of him, if I press'd a little harder than ordinary, it took away his Sight. I could have made a *Gutta Serena* perfect or imperfect, just as the Depressure was made

on

on the Brain more or less. I blooded him ten Times in the Course of the Cure, which was thirteen Weeks a doing. The Man can drink as hard as ever he could, which he does sometimes very plentifully, and is capable of any Exercise, without being subject to a Pain of his Head.

ABOUT two Years since I saw a Man at *Acton* in the County of *Middlesex*, that had an Opacity of the *CrySTALLINE*, with an imperfect *Gutta Serena*, because the *Pupil* had but a quarter Movement, occasion'd by a Fracture of his Skull ten Years before. The Fracture was on the superior and lateral Part of the *Coronal* next his Temple. His Surgeon not minding the Symptoms of Indication, which are the main Points in Fractures of the Skull, only dress'd the outward Wound, and heal'd it, without proper Evacuations by repeated Bleedings and Trepanning, which wou'd probably have prevented Blindness in his Case; for the Man had a violent and continual Pain of his Head and Eyes, and sometimes even to Distraction. About three Years after the Accident, one of his Eyes burst, and a *Cataract* was entirely form'd two Years after that in his other Eye. He had a *Phalangosis* of the same Eye where the *Cataract* was, that is, the under Eye-lash was turn'd against the *Horny-coat*.

WHEN the Man had got a little more Liquor than ordinary, so as to rarify his Spirits, he could distinguish Objects; at other Times he cou'd hardly see Shades of Things.

ARISTOTLE, in his second Book of *Parts of Animals*, says, That he knew a Man having very hot Brains, when he had drank a Glass or two of Wine more than ordinary, it put him in a Condition to read in the darkest Night.

THERE is a Disease in the Eye, which is quite opposite to these last, which is a Stagnation of the Ocular Humours, which makes an Obstruction and Nubilosity, or Thick-sightedness; the Eyes appearing like those of dead Carcases, where there is no Vivacity, no Irradiation. I have observ'd this Disease in the Eyes of two Surgeons, one was Mr. *Walker* in *Catherine-street, Covent-Garden*; the other was Mr. *Nelson* in *Long-acre*, they both died within the twelve Months after the first Invasion of the Disease.

A CATARACT that is ready to be couch'd, may be known by these Signs; it must be so opaque, that the Person can only see Shades of Light, and not distinguish Objects. It is also to be observ'd whether the *Cataract* be not accompany'd with a *Gutta Serena*, which may be known by this Method; place the Patient in a Chair

next to a Window fronting the Light, close his Eyes with your Thumbs, make a Circular Friction on the upper Lid of the Eye which has the *Cataract*, and keep the other Eye cover'd; then open the Lids with your Fore-Finger and Thumb: If you find that the Light which falls upon the *Pupil*, makes the *Iris* contract, and that, altho' exposed to the same Light, it dilates to the half, or to the quarter of that Degree to which it was contracted when first exposed to the Light after the Circular Friction, you may judge there is no *Gutta Serena* behind the *Cataract*, and that the *Cataract* is ripe enough to bear the Needle.

IN case the Eye where there is a *Cataract*, be bigger or lesser than its ordinary Structure require, tho' there be a Movement of the *Pupil*, there will be no Success in the Operation, because the Coats are over-extended in one, and in the other are contracted; so that the Needling of them very often occasions terrible Inflammations, which sometimes burst the Eye.

THE Refraction made in the Humours of the Eye very often deceive the Oculist in the Examination of the *Cataract*. This Disease appearing to him to be a *Cataract* upon the inward Blades of the *Cornea*, opposite to the *Pupil*, which is nothing else but a light Cloud or Mist, caus'd by an Obstruction in the Pores of the *Cornea*, after

an Inflammation of the Eye ill dress'd; the Inflammation having caus'd a Solution of the Continuity of the Parts: The cicatrizing of which causes that Cloudiness or Opacity. Sometimes there may be an Opacity of the *Crystalline* accompanying a Cloudiness of the *Cornea*; and if the *Cataract* of the *Crystalline* be couch'd, it will be of very little Use, as long as there is an Opacity opposite to the *Pupil* in the *Cornea*. The Oculist ought to turn the Eye different Ways to know the Nature of the *Cataract*.

It will be very necessary to visit your Patient often before you couch, and to examine his Eye well, by which Means you will be better able to judge of the Nature of his *Cataract*; and ask him several Questions, by which you may know his Constitution and Temper, and how he governs himself as to his Diet; so by these Methods you may learn to treat him in a methodical Way.

If it is a Woman you must not perform this Operation eight Days before, nor a few Days after her monthly Purgations: She must have no Pain in her Head, nor no Looseness, nor Cough, or Cold, nor Rheumatism. In fine, there must be an entire State of Body and Mind in those who have a Desire to undergo this Operation. They must observe a regular Diet a Week

Week before the Operation, and purge twice in that Week, and the last Purge always three Days before the Operation, that is, if there is Necessity for it. Purges are not always indispensably necessary; but to Persons who are too replete. To others who are lean and old, a Medicinal Diet is the properest. It is to be observ'd, that a *Cataract* appears sometimes to be entirely ripe before Purging, and that after the Purge the Patient can distinguish Objects in a small Degree, which obliges the Oculist to defer the Operation, because the Body of the *Cataract* has not the Consistence nor Opacity as it had before. It is observ'd, that in Women before the Benefit of Nature which belongs to their Sex comes, the *Cataract* appears to want a great deal of its Maturity, which is requir'd for the Operation. So it is always good to prepare the Patient, if it was only to take the Indication as one ought to do.

S E C T. III.

As to the Seasons of the Year for the Operation of the Cataract.

T H E R E are several Pretenders in this nice Operation, who insinuate the Time most convenient for it to be either in Spring
or

or Autumn. It's true, they are the most proper Seasons for their travelling about the Country: But we find by Experience, that the other Seasons are as favourable. For the hardest Winters are very proper, especially for those who love their Beds, or for those who are Valetudinarians; and the Beginning of the Spring for all young Persons, and those who are of a good Disposition of Body; and the Summer for those that do not love their Beds; and who have sparkling hot Blood. In fine, one may do this Operation at any Time of the Year, by taking proper Measures to suit the Constitution of the Patient; and where they can bear Evacuations as the common Rule is, as Bleeding and Purging before the Operation, and after the Operation to keep them low in Diet with liquid Food. There are some who cannot bear Evacuations, for it weakens them too much, especially toward the Autumn. Others can't bear liquid Food, for it relaxes the Fibres of the Stomach, and causes them to vomit: So we are oblig'd to let them diet themselves according to their Inclinations. For the keeping an Epicure low in Diet, weakens his Constitution, which sometimes ends with the fatal Tragedy of Death, before we see the Success of the Operation. All these Things ought to be very well consider'd before the Operation, for the

Good

Good of the Patient, and Credit of the Surgeon.

THE Day the Operation is done must be neither windy nor rainy, but clear. The Room where the Patient lies in must be free from all Noise.

THE different Needles for the Operation of the *Cataract* :

THE round one is the best for new Beginners, because they enter with Difficulty into the Eye ; so that the Oculist will not be subject to go through and through the Eye, which happens sometimes by the Patient stirring his Head of a sudden, and the Operator not being vers'd in the Operation. When he is us'd to the Practice, he may make use of what Needle he thinks fit ; some are in shape of a Lance, others flat, some three square, some without a Point, that is, (after the Puncture is made with a pointed Needle) then to put the blunt one into the *Orifice* ; so that the Operator may work with that sort of Needle he thinks properest.

THE Operator must pass his Needle two or three Times through the Lap of his Coat, to warm the Needle, because it being cold, it will be subject to stop the Pores, and occasion an Inflammation.

THE Practice of the *German* Oculists, and the Northern Countries is, as they always use a round Needle, they wet it with
their

their Spittle, which gives them a great deal of Difficulty to pierce the *Sclerotis*, and very often cause an *Ecchimosi*s, by dividing the *Membranes* one from the other, which is often succeeded with a violent Inflammation.

THE Modern *Greeks* and *Arabians* use a Needle which is too small. They alledge that it is to hinder the wounding of the inward Capillary Vessels, as well as the outward ones, and that is the Reason they use round Needles for fear the Edges of other Needles should hurt the Parts: But these Gentlemen do not consider that these small Needles are very subject to bend, and sometimes break within the Eye. They say, that the large Needles are subject to split and open; but that happens only when they are almost worn out: One may easily prevent that by changing the Needles often.

THE Roman Oculists, when they find a *Cataract* that draws upon a whitish Colour, use a gilded Needle, and when it draws upon a yellow or greenish Colour they use a Steel one; and always colour their Needle to the contrary of that of the *Cataract*, for to distinguish it the better.

PLINY insinuates, that in his Time they used to draw the *Cataract* out of the Eye; and that after twenty Years Blindness, Sight had been restor'd to human Kind;

Kind; *Humore emissio*, by which we understand the Humour drawn out. The drawing the *Cataract* out of the Eye, thro' a hollow Needle is made mention of by *Johannes Scultetus*, in his *Supplement* to the *Arsenal of Surgery*, where there is the Figure of a hollow Needle reform'd by *Roermathiolis*. It is a little *Canula* with some Gold or Silver Wyer in it, which closes like Pinchers to draw the *Cataract* out after it was loosen'd by a pointed Needle. This Invention is more speculative and curious than practicable, at least with this Instrument according to the Description which is given in *Scultetus*. Several Modern Authors have given us Descriptions of these sort of Instruments with its Reformation. But these Gentlemen do not tell us, whether they ever put this Operation into Practice with these sort of Needles.

M^R. *Woolhouse* says, that he try'd once this Operation on a living Person; but being obliged to make a little Incision in the *Sclerotis* to make way for the *Canula*, or blunt Needle, all the aqueous Humour came away, and it wou'd have been impossible to introduce another Instrument without destroying the Eye; it is impossible to put such an Instrument into use.

AVICENNES, an *Arabian* Physician, furnishes us with an old Picture of a *Cataract-Needle* of his Time, which he call'd
Almachda,

Almachda, which appears like a little *Canula* for the Operation of the *Paracentæsis*, in which appears a Needle like Pincers to take hold of the *Cataract*, and draw it out thro' the *Canula*. This Needle appears to be more conformable to Practice than that of *Roermathiolis*. There are a great many good Practitioners who pierce the *Sclerotis* with a three square Needle, and then put their blunt Needle in to couch the *Cataract*. Those are proper in some sort of *Cataracts*; but where the *Arachnoïdes* is opake, and very adherent, it will be impossible to couch it without a pointed Needle, or to make a Hole thro' it, that is, when it cannot be couch'd without.

S E C T. IV.

Of an Opacity of the Arachnoïdes, and a Cataract of the Cryſtalline.

IN the Year 1720, a Man came to me with an *Opacity* of the *Arachnoïdes*, and *Cataracts* of the *Cryſtallines* of his Eyes. He was about thirty fix Years of Age, and as he told me, had been blind fourteen Years. The Movement of the *Pupil* of his Left Eye was very free, that of his Right Eye was not so good. The *Opacities* of the *Arachnoïdes* were like Scales of Fish, with a little Grayness betwixt the apparent Scales. I
could

could distinguish one lying on Part of the others, which I found to be so when I came to Couch. I askt him if he was subject to a Pain of the Head, or Inflammations on his Eyes; he told me he was not subject to either. I prepar'd him by Purgings, and two Days after the last Purge, I Couch'd his left Eye; I plac'd him sideways close to the Window, his right Eye being next to it. If there are more Windows than one, you must cover them with some dark Hangings, that all the Light may be at the Window where you Couch. The placing them, as some do, fronting the Light, makes the Pupil contract too close, which hinders the Inspection into the Eye; for one must never lose sight of the Point of the Needle, if it can be prevented, when once enter'd behind the Pupil, for fear of wounding the *Uvea*, which may occasion an *Hypopyon*; or sometimes a *Hippus* of the *Iris*.

I PUT him in a Chair, with an Assistant behind him to hold his Head, the back Part of the Head leaning against the Assistants Breast-bone, who put his Hands on the upper part of his Fore-head, and held his Head firm. The Operator's Chair must be higher than the Patient's, that he may be better able to inspect the Eye, and have the free use of his Arms, which must be on a level with the Patients Eye.

I MADE the ordinary Defensive of *Rose-water* and *Alum. Saccharum Saturni*, and *whites of Eggs*. I dipt Compresses of about two Inches square, and four double in the Defensive, and put one of them on the right Eye, and a Cloth over the Compress to go round his Head about his left Eye-brow; held under the Hands of the Assistant; with two other Assistants to hold the Patients Hands down; for Patient's being very subject to put their hands up, may by so doing frustrate the Operation. I took a flat Needle pretty strong and gradually taper, betwixt my Fore-finger and Thumb of my right Hand; and gaging it with my Middle-finger to the thickness of a Crown, I put one of its Edges towards the *Cornea*, the other towards the Temple. I made a gentle Friction on the upper Eye-lid, to discern the Capillary Vessels of the *Conjunctiva*, so to hinder the pricking of those Veins, for if they are prickt there follows an *Ecchymosis* in the *Conjunctiva*. I order'd the Patient to turn his Eye towards his Nose. I made my *Puncture* the thickness of half a Crown from the Edge of the *Cornea*; not exactly in the Middle, but the thickness of a Shilling lower; by this means I commanded the Needle towards the upper Part of the *Cataract*.

HAVING

HAVING pass'd right forward through the *Conjunctiva Sclerotis*, and *Choroïdes*; the thickness of half a Crown; I gently withdrew my Middle-finger the fifth part of an Inch, and turning the handle of the Needle towards his Temple push'd it forwards slowly till it came towards the upper part of the *Cataract*: I mov'd the point of my Needle to examine the Nature of the *Cataract*, (and found it gave way by gently pressing upon it) till I could get the flat of the Needle on the upper Part of it. As I press'd that which appear'd like Scales, there separated from it into the Aqueous Humour about twenty Pieces, three or four of which fell into the outward Chamber of the Eye, and appear'd like little Skins; the Body of the *Crystalline* went all down together. I ask'd him if he could see any thing; he answer'd, that he saw a great Light, but could not distinguish any thing; this proceeded from the little Films of the *Arachnoïdes*, which swimming in the Aqueous Humour hinder'd the distinguishing of Objects. I thought the *Cataract* sufficiently depress'd, for it was level with the lower part of the Pupil, and drawing the Needle out gently, I put a Compress dipt in the Defensive on the Eye-lids. It was about four o'Clock in the Afternoon when I perform'd the Operation; which being done, I plac'd him

M

in

in a Chair by the Fire-side, and put something before the Window to hinder the Light from entring the Room, and hang'd something betwixt his Face and the Fire. I dress'd both Eyes about seven o'Clock that same Evening with the Defensive, the Candle being plac'd behind the Patient's Head. At nine o'Clock he went to Bed. The Patient must not stoop to take off his Shoes or Stockings; for by stooping in these sortsof *Cataracts* where the *Arachnoïdes* is gone, the *Cataract* will be subject to fall through the Pupil into the outward Chamber of the Eye. That first Night I dress'd him every three Hours with the Compresses dipt in the Defensive, and gave him Water-gruel or Broth; for the Patient must not chew any thing for eight Days, if they can bear it; the next Day about eight in the Morning, he was taken up and put in his Chair, where he sat all Day. For the Patient if kept in Bed will be subject to Dose, and the dosing in the Day hinders resting at Night. Fifteen Hours after the Operation, I wash'd his Eyes with Brandy one Spoonful, Water five Spoonfuls warm, and this I did twice a Day with a fresh Mixture, at the Time betwixt the taking off and putting on the Dressings, for six Days. And then left off dressing the Eye that was not Couch'd. After this, I began to inspect into the Eye that had been

Couch'd

Couch'd, and found the *Cataract* was a little higher than when I suppress'd it. Those parts of the *Arachnoïdes* which broke into the Aqueous Humour and remain'd in the inward Chamber of the Eye at Couching, all gather'd together behind the Pupil and cover'd it. I therefore dress'd the Operated Eye two Days longer with the Defensive, and then began to try if I cou'd precipitate those little Films that were behind the Pupil, and draw them into a narrower compass. For this end I took a Walnut-shell and made a Hole through the Middle of it, the bigness of a middling Pin's-head, and likewise at each end to tie strings to it; having blackt the inside of the Shell with Ink, I put it on the Operated Eye, and the two strings round his Head pinned to his Cap. As there was now but a little quantity of Light admitted through the Hole, and that conducted to the Eye by the blackness of the Shell, the Pupil dilated; those little Films admitting some of the Aqueous Humour into their Pores, caus'd them to swell, and their own weight caus'd them to fall to the Bottom of the inward Chamber behind the *Iris*. The Films that fell into the outward Chamber in the Couching, augmented in bulk by the Aqueous Humour entering their Pores, to be as big again as they were when they first fell into it. Af-

ter he had worn the Shell eight Days, the little Films all sunk entirely to the Bottom: Afterwards I made the hole in the Shell a little bigger to augment the Light by degrees; those little Films in the outward Chamber diminish'd by little and little, and at last seem'd to stick to the lower part of the *Iris*; but this being of a grayish Colour, the Eye suffer'd no disfigurement. The *Cataract* was three Parts below and behind the Pupil, so that in two Months time after the Operation it was almost gone, leaving a little Eminence of that Part of the *Cataract* which remain'd, and the Man saw as well as any one that had a *Cataract* of this sort Couch'd.

HE perswaded me to Couch his other Eye, which I did not care to undertake, because the Pupil had not so good a Movement as the other Eye had; but being over perswaded, three Months after the first Operation I Couch'd his right *Cataract* about five o'Clock in the Evening, the Day being Serene; it was in the Month of *July*; the Needle in my left Hand because it was the right Eye that I Operated. It broke in several Pieces, one of which stuck to the Bottom; I push'd my Needle to it but the Man complaining of a violent Pain, I desisted. The Aqueous Humour look'd of a whitish Colour, from the quantity of little Pieces that broke into

it, and mixt with the Aqueous Humour. I dress'd both Eyes with the Defensive. The next Day he complain'd of a violent Pain in the Eye that I Couch'd last, had a great Pulsation of the Temple on the same side of the Painful Eye, and his Head ached. I was afraid of a *Hypopyon*, for the Eye began to be inflam'd, and the Parts betwixt the *Conjunctiva* and Eye-lids swell'd out beyond the Edges of the Lids. I Blooded him in the Jugular Vein, put a Blister on his Temple, and apply'd the Pulp of a roasted Apple at Night; the next Day I scarified his Eye, and the Pain of his Head began to go off, the Extension on the inside of the Eye-lids diminish'd. But at the end of six Days looking into the Eye, I found he had no Sight: The Aqueous Humour had clear'd itself, the Pupil was dilated, and a *Gutta Serena* ensu'd; the Vitreous Part look'd clear like *Chrystal*. If I had not gone so far back with my Needle to reach that Opacity which stuck to the inward Blade of the *Arachnoïdes* close to the Vitreous Humour, the Transudation of the Aqueous Humour wou'd have push'd it forward and clear'd itself from those Segments of the *CrySTALLINE* which the Needle could not reach without danger.

I HAVE been very cautious of the Point of my Needle since that Accident; and I mention this, that young Surgeons may take care of falling into the same Accident. But the Man was so overjoyed to see pretty well with his first Couch'd Eye, that he did not much regret the loss of the other.

S E C T. V.

Of a Cataract in the inward Chamber of the Eye, and a Glaucoma in the CrySTALLINE of the same Eye.

A WOMAN about fifty Years of Age, came to me after I had Couch'd the forementioned Man. She had a Film *Cataract*, as I thought it, of a Cream Colour in her left Eye, in which the Movement of the Pupil was very good. The other Eye had been Couch'd four Years before, and had a *Glaucoma* in it. I judged it to be a *Glaucoma* of the Vitreous Kind, from its being of a darkish Gray, and not fleaky. She could not see much with that Eye which had been Couch'd, for the Pupil had only its quarter Movement. She had been subject to a violent Pain in her Head and Eyes, ever since the beginning of her Blindness, which had been twelve Years a coming. I prepar'd her for the Operation:
I made

I made the Puncture the thickness of a Shilling from the Edge of the *Cornea*. The reason of my making the Puncture so nigh the *Cornea*, was because I judg'd the *Cataract* to be a Film, from its Colour and likeness to fine Cloth in the inward Chamber of the Eye: I pass'd the point of my Needle betwixt the *Uvea* and *Arachnoïdes*, behind the *Cataract*. The moment that I press'd on the upper part of the *Cataract*, it fell down all together, and did not offer to rise again. I lean'd the point of my Needle a little down behind the Opposite to the Pupil, to try if she could see any thing; but she cou'd see very little. There appear'd a sort of a darkish fleaky *Glaucoma* in the *CrySTALLINE*: I drew my Needle out and dress'd her Eyes. The seventh Day, looking into that which I had Couch'd, I perceiv'd very plainly a dark Gray in the *CrySTALLINE*. She cou'd see and distinguish some things when they were very nigh, but when they were at a little distance, she cou'd only see the Shades of them. I order'd her to wear a black Hood in the day time hanging over her Eyes, to hinder a too great Light on her Eye, so as to use her gradually to the Light.

THE Movement of the Pupil was but one quarter after the Operation, and the Sight was but very little, the *Glaucoma* of the

Crystalline obstructing the Light from passing into the Fund of the Eye.

SOME Persons may object that what I took for a *Glaucoma* in the *Crystalline* Humour, was nothing but a *Glaucoma* of the *Vitreous* Humour. I answer, that the *Glaucoma's* of the *Vitreous* Humour are of a smoother Gray, and deeper in the Eye than the *Glaucoma's* of the *Arachnoïdes* or of the *Crystalline*.

ABOUT five Years since, I saw a Woman in *Holborn* by *King's-Gate-Street*, that had a Diffolution of *Vitreous* Humour in her right Eye, a narrowness of the inward Chamber, and Immobility of the Pupil, and half was dilated. The *Crystalline* was opaque and shrunk in its bigness, press'd against the lower Part of the Pupil, and was of a whitish Gray by reason the Fibrous parts of its crooked and contracted Segments, so that she could not perceive any Light with that Eye. She ask'd me if I cou'd do her any good? I told her there was no Hopes; for she could not see the least Glimmering, because her *Cataract* was accompany'd with a *Gutta Serena* which was perfect. She told me that Mrs. *Jones*, a famous Woman for Couching of *Cataracts*, would have Couch'd her some Years before. I suppose in hopes of Success; which Quacks are wont to promise themselves,

selves, notwithstanding their want of Knowledge to conduct them.

I KNEW there was a Dissolution of the Vitreous Humour because the Globe of the Eye was softish.

S E C T. VI.

Of a Greenish Yellow Opacity of the Crytalline.

ABOUT eight Years since I Needled the Eyes of a Woman at *Castleton* in *Derbyshire*. The Movement of the Pupil was very good, the Opacities of the *Crytallines* appear'd indifferent smooth, of a bright Colour with nothing of Gray in them, and she could distinguish Shades of things; she had been Blind seven Years, and for a long Time had been troubled with a violent Pain in her Head. The Movement of the Pupil enticed me to Needle them. I first apply'd my Needle to the left Eye, which went through the Opacity with some resistance; the Texture of the *Crytalline* not being dry enough to support the Needle. After I had drawn my Needle out of the Eye, I put a Compress on the Eye with the ordinary Defensive. Then I began on the other Eye; the Needle pass'd through the Opacity,

as

as it did in the other Eye: But she could not see better than she did before.

H E R E I went against the common Rule of that great Man Mr. *Woolbouse*, who advises us never to touch those sorts of greenish yellow Opacities of the *Crystalline* although there be a Movement of the Pupil. Sometimes it happens that the *Crystalline* is dry enough to bear the Needle, and is Couch'd, then there is generally an Opacity of the Vitreous Humour behind them. I thought to have outdone my Master; but for the future I shall observe his Rules, because I have learnt the Truth of them from my own Experience.

S E C T. VII.

Of a Glaucomatick Cataract of the Arachnoïdes and Crystalline.

A B O U T five Years since, I was sent for to a young Man of nineteen Years of Age, near the Turn-Pike in *Hammersmith*. In his Infancy when he was about eighteen Months Old, he had the Misfortune to fall out of Bed, and his Head striking on the Floor, he became Blind. He was carried to several Oculists, and last of all to Sir *William Reed*, who declar'd, as the rest had done, that there was no Remedy for him. However, as he grew up he could
see

see a little; he had a *Hippus* on the Ball of the right Eye, which was something shrunk; with a pearlish Gray in the *Arachnoïdes*, the *Cryſtalline* too was shrunk and adher'd to the *Arachnoïdes*, as it always happens in this sort of *Glaucoma*. They appear like Mother of Pearl, with Eminences in some parts, and dented in other parts; the dented Parts make it appear Gray. The other Eye did not appear to be shrunk, but had an Opacity in the *Cryſtalline* of a Lead Colour, and two white Specks the bigness of small Pin's-heads on the *Arachnoïdes*. I judg'd them to be in the *Arachnoïdes* because they seem'd to be nigher than the Opacity of the *Cryſtalline*, and to have had their Origin from an *Abscess* of the Parts. He could see better with this Eye than the other; it being without an *Hippus*. His Parents desired me to Couch him; but as all these sorts of *Glaucomatick Cataracts* require great Caution, I did not promise them great success, especially since the Eye was shrunk. I propos'd to Couch the right Eye, with which he cou'd but just see to distinguish a little Light. When I came to Needle it I found it so adherent that it wou'd not give way without danger of tearing the superior Part of the Vitreous Humour. I tried to make a Hole through the *Cataract*, which I performed, but the Hole
not

not being big enough, I cou'd work no longer at that time, because most of the aqueous Humour came away, and the Fore-part of the Eye became flat. He had a little Pain in his Eye after the Operation, but that went off the next Day. Two Days after he told me, he cou'd see the Light that came in betwixt the Curtains of the Window, by the Sides of the *Compress*. The sixth Day looking into the operated Eye I found the Hole in the *Cataract* to be very small. However, he cou'd see something better than he cou'd before. As his Eye was very much fatigued by the Operation from the Toughness of the *Cataract*, I let him rest for a Month. And then putting him in the same Position, as when I needled his Eye before, I made the Puncture a little on one Side of the *Cicatrice* from the first Puncture. I made the Hole in the *Cataract* considerably bigger. This being done, I drew my Needle gently out of the Eye, and dress'd the Eyes with the Defensive, six Days one, and eight Days the other. Then I left off the Defensive, and kept him dark with a black Hood over his Eyes. The Parts of the *Cataract*, which I had divided, appear'd close together, which was from the Pores receiving a little Quantiry of the aqueous Humour into them. The Eye being a little disturb'd from the Fatigue of the Operation, I let it rest for thirty Days,

then

then I put half a Walnut-shell over it, in the same Method as I mention'd before. At the End of two Months he could see Trees and Posts pretty well with the operated Eye.

I did not care to touch the other Eye, because the Nature of the *Cataract* was such, that in all Appearance he would see no better.

If the *Cataract* had been needled, there wou'd have been Danger of Loss of Sight from Inflammations which might have happen'd on the Eye. For the *Crystalline* being only opake in its Exterior Pores from the Curvity of its Parts, tho' it look'd of a smoothish Nature, was yet as much adherent to the Blades of the *Arachnoïdes* as those which are transparent; so the Needling of it wou'd have made a Dissolution of its Parts, where the Needle touch'd, and the other Parts wou'd have adher'd to the Sides and Bottom. The Pieces that are broke in Needling will swell from their Pores being fill'd by the aqueous Humour which it finds in the Parts where they are; the Pieces that are adherent receive a greater Quantity from their nourishing Vessels, which causes a greater Flux by the Discontinuity of their Parts. In all Wounds there follows a great Extension of their Edges, from the Juices being intercepted, which causes the Exterior Pores of the wounded Part to swell,
and

and this will occasion an Inflammation, which is sometimes follow'd with an *Hypopyon*, or at other Times a *Gutta Serena*. An opake *Crystalline* of this sort can no more be couch'd than a *Crystalline* that is transparent.

THERE was only this Difference in the Case I have mention'd ; some of the Pores being a little crook'd, occasion the Lead Colour, and the other Parts remain'd as strong, and as adherent as those that are not opake. This Opacity had been sixteen Years without growing opaker. I believe the Opacity of the *Crystalline* was from the two little *Abscesses* in the *Arachnoïdes* ; for these inflaming the outward Segments of the *Crystalline*, occasion'd the Curvity of their Pores, which is the Cause of Opacity.

ABOUT three Years since I was desir'd to go and see a Child about seven Years old that was born blind, living in *Porter-street* by *Newport-Market*. Her Eyes had been needled twice by *Dr. Clark*, as they told me, but without Success. She had *Hippus's* on the Balls of her Eyes, yet the Movement of the *Pupils* was very good. The *Operator* had loosen'd the lower Part of the *Cataracts*, which I found by their blueish gray Colour to be *Glaucoma's* of the *Arachnoïdes*; the *Crystalline* was also shrunk and adherent to the *Arachnoïdes*, and flat-

tish

tish with Indentednesses. The Mother desiring me to couch her Child; I told her that if the *Cataract* had been adherent in the Bottom, it might have been done, or rather a Hole made thro' them. However, to satisfy her Importunity, having plac'd the Child in a Chair, I made the Puncture with a flat Needle about the Thickness of half a Crown from the Edge of the *Cornea*; I push'd my Needle towards the upper Part of the *Cataract*, in proportion to the third Part of the Round of the *Pupil*. When I came to press against the *Cataract*, it wav'd, so that the Point of my Needle cou'd not enter the Body of it. Then I try'd to lift it up, which I did very easily. Whilst it was up, the inward Chamber appearing very clear, I ask'd her what she cou'd see; but she saw no more than when the *Cataract* was down, behind the *Pupil*. I then try'd to turn my Needle in the Bottom of the *Cataract*, and by that Means to roll it round my Needle; but it was of that waving Nature, that I cou'd not accomplish it without Danger of tearing the inward Chamber of the Eye to pieces. As the Parts appear'd to be very clear behind the *Pupil*, I press'd a little with the Flat of my Needle towards the vitreous Humour; but found there was no Consistence; which persuaded me that there was no *Crystalline* beyond it; so that this *Cataract* was the *Crystalline*
shrunk

shrunken and flatten'd, and adherent to the *Arachnoïdes*.

IT was the close Union of the Ciliary Productions with the *Arachnoïdes* and its Ciliary Fibres, that was the Cause of the great Adherency of the upper Part of the *Glaucoma*. And the *Glaucoma* being strengthen'd in proportion to the Dryness of the fibrous Parts of the *CrySTALLINE*, and their Adherency to the *Arachnoïdes*, this made them one Continuity, and in course united the Ciliar Productions the more closely to the Ciliary Fibres of the *Arachnoïdes*, which contain the *CrySTALLINE* in the vitreous Humour. This *Cataract* was not convex, but flat; and these *Glaucoma's* are what I take to be membranous *Cataracts*. If I had been call'd before this had been needled, I shou'd have slit it in four Pieces, or else have made a Hole thro' the middle of it, which might have been done without much Difficulty. 'Tis a very easy Matter to judge of their Thickness by their Colour, and by the Adherency of the *Arachnoïdes* to the *CrySTALLINE*. But all these Cases require a great deal of Practice, to attain to the Knowledge of them.

SECT.

S E C T. VIII.

Of a Cataract of the Cryſtalline, and a ſmooth Opacity of the Arachnoïdes.

ABOUT four Years ſince I was ſent for to a Man at *Hammerſmith*, of about ſixty Years of Age. His Left Eye had a *Cataract* of three Years Growth. The *Cryſtalline* was opake all thro', with a black Speck in the Side of it toward his Noſe; the *Aracknoïdes* was alſo opake, but very ſmooth. I cou'd obſerve Clouds in the *Cryſtalline* of a large fleaky Nature; the Opacity of the *Aracknoïdes* was not ſo great, as to hinder me from ſeeing thro' it. In the Right Eye the *Cryſtalline* was beginning to be opake; the Part next to the *Aracknoïdes* was of a very ſmooth light blueiſh Opacity, and he could ſee indifferent well. Attending him for about two Months before I couch'd his Left Eye, I ſaw the Alterations that happen'd in his Right Eye; I found the Opacity augmented by degrees, and his Sight diminish'd. About thirty Days before I couch'd him, he had a violent Inflammation on his Left Eye, occaſion'd by a Dog jumping at his Eye. I ſcarify'd him twice, and order'd him to waſh with warm Water, by which Method the Inflammation went off.

I PREPAR'D him for the Operation, by the common Evacuations; and having made my Puncture thro' the Coats, I push'd my Needle forward, and found I was in the Body of the *Crystalline*, by the Opposition which I felt at the Point of my Needle. Pressing the Point downwards, I found the whole Body of the *Crystalline* move, and cou'd even see it move, (the *Arachnoïdes* being so opake as to hinder my seeing thro' it.) I was about four Minutes before I cou'd disengage my Needle, and being obliged to move it up and down to break the Texture of the *Crystalline*, I found that the aqueous Humour began to whiten by the little Pieces of the *Crystalline* falling into the inward and outward Chambers of the Eye; and this hindering me from seeing the Point of my Needle, I was obliged to desist for that Time. The Fore-part of the second Night he complain'd of the Pain of his Head and Eye, and was very restless. I therefore gave him two Grains of *Opium* in a Pill, which compos'd him; the next Day he was very easy, and continu'd so; the sixth Day I left off dressing his Right Eye. I began to look into the operated Eye. The inward Chamber look'd very opake, with a slight Inflammation. I kept dressing him two Days longer, then I kept his Chamber dark till the tenth Day, when I let in a little Light. Upon my enquiring

what he could see, he answer'd that he saw a great Light, but cou'd not distinguish any thing, for it appear'd as if he were looking thro' a Bottle full of Water, and Bran swimming in the Water. And he added, that if those Things which appear'd like Bran were sunk, he believ'd he shou'd see. As his Eye was very much fatigu'd in the Operation, I let him rest a Month; and in this space of Time, the Parts of the *CrySTALLINE* that swam in the aqueous Humour were sunk to the Bottom. So that now I cou'd perceive I had made a Hole thro' the *Arachnoïdes*, and he could see very well strait forward. But as that Hole was not big enough; to enlarge it, I needled his Eye the second time, just thirty Days after the first Operation, when I met not with that hardish Consistence, when I came to the Place where the *CrySTALLINE* was, which I had found at first. I scrap'd the Hole gently with the Edge of the Needle, but the Parts being very tender, I was afraid of exciting a Flux of Humours, by over-extending the little nervous Filaments which join the *Arachnoïdes* to the vitreous Humour. Betwixt each Filament there are Channels which inclose the Ciliar Productions, which go all round the *CrySTALLINE* of the Eye, and on the anterior Part of the glassy Humour; these being strongly united all together, make the *Arachnoïdes* so tough, that it will not

separate from its nervous Filaments: And this obliged me to make a Hole thro' it. Having drawn my Needle gently out, I dress'd both Eyes with the ordinary Defensive, as I had done before. At the end of fifteen Days I put half a Walnut-shell black'd within, with a little Hole thro' the Convex-Part of it, over his Eye in the Day-time, and put the Pulp of a roasted Apple at Night, because the Shell heated it. After he had worn the Shell eight Days he cou'd see Things with the Shell on his Eye at three hundred Yards distance. The Hole thro' the *Arachnoïdes* was considerably bigger by the Shell being over his Eye.

S E C T. IX.

Of a Cataract of the CrySTALLINE, and the Arachnoïdes transparent.

ABOUT three Years since I met with a poor Woman at the lower Part of the pav'd Stones in *St. Martin's-Lane*, poking along with a Stick: Looking on her Eyes, I found there was a *Cataract* in her Right Eye; I ask'd her how long she had been blind of that Eye, she told me it was seven Years since she first perceiv'd a Defect in it, and that for three Years she cou'd not perceive any thing. Examining her Left Eye, I found she could see a little with that Eye,
which

which as she told me, Dr. *Grant* the Oculist had couch'd fifteen Years before. He had made a little Hole thro' the middle of the *CrySTALLINE* and *Arachnoïdes*, which stuck together; the *Arachnoïdes* was of a darkish Colour, the *CrySTALLINE* of a whitish Opake all round the Edges where he had made the Hole. She told me, that she was three Months before she cou'd see any thing after the Operation, and what Sight she had of that Eye was but very small. I judg'd it to proceed from an exterior Cause, because of the Darkishness of the *Arachnoïdes*. She told me, as she had been a Cook, a Coal of Fire had flown with great Force against her Eye, and occasion'd a violent Inflammation; and that her Sight diminish'd by degrees, till she was so blind as not to distinguish Objects.

I NEVER saw a darkish Opacity in the *Arachnoïdes* to extend so far as this. As the Contusion had caus'd an Inflammation in the Vascular Parts of the *Arachnoïdes*, the Blood stagnating caus'd the darkish Colour; but the anterior Part of the *Arachnoïdes* seems to be compos'd of Vesicular Parts, and they appear to be fill'd with a watery Substance. If her Eye had been scarify'd five or six Times it wou'd have prevented the Stagnation, and caus'd a Fluidity of the Juices, and in all Appearance hinder'd Opacity.

THE Movement of the *Pupil* of her Right Eye was the finest I ever saw. The *Cataract* was of a smoothish Cream-colour, not of the Smoothness of the milky *Cataracts*, but a little curdled. A Man must be well acquainted with *Cataracts* before he can distinguish them.

HAVING prepar'd her by proper Evacuations; the third Day after the last Purge, which was the latter End of *September*, I went to her Chamber in *Dean-street, Holbourn*, about Three o'Clock in the Afternoon, and there were present at the Operation Mr. *Frazier* and Mr. *Brittnor*, two Apothecaries, and several others. Having all Things in order, I therefore fell to work in the Presence of these Gentlemen. After I had made the Puncture, and push'd my Needle two Parts in three behind, and level to the *Pupil*, and moving it gently, to try if the *Cataract* was adherent to the *Arachnoides*, I found that it gave way, and from thence concluded that it was not very adherent: By degrees I work'd the upper Part of it till I brought it under my Needle; I press'd the flat Part of the Needle on the *Cataract*, and as I press'd on the middle of it, it appear'd to rise on the Sides, because of a little Elasticity that was in the Fibres of the Segments of the *CrySTALLINE*, or from the aqueous Humour that was inclosed with the *Cataract* betwixt the Blades of the
Arach-

Arachnoides, and perhaps both contributed to its rising. At last, by working gently I couch'd it, and laid it in the Bottom a little lower than the Level of the *Pupil*. I durst not press the Needle so low, as to be out of Sight, for fear of forcing the Ciliary Fibres. For this wou'd have caus'd a *Hypus*, or a Dilatation of the *Pupil*, and a *Gutta Serena* of course. After I got the *Cataract* down, I kept the Flat of my Needle on it, then lifting the Point of my Needle up to see where it did not rise again, the *Pupil* appearing clear, and asking her what she cou'd see, she told me she could distinguish any thing in the Room. Then keeping the Eye steady with my Middle-Finger, and with my Thumb and Fore-Finger giving a Turn to the Handle of the Needle as I enter'd strait forward, so when I came within the Thickness of half a Crown of the Point of it, I drew it strait out : Then I dress'd it, and order'd her to be dress'd every four Hours with the Defensive. The sixth Day after the Operation, looking into her Eye, I found the *Cataract* was risen ; therefore placing her on a Chair, I made the Puncture, and push'd my Needle to the upper Part of the *Cataract*, which went down at the first Compression. At the end of the sixth Day, she complain'd of a pricking Heat in her Eye ; I found there was an Inflammation, which oblig'd me to bleed

her; then I applied a Compress dipt in Brandy one part, and Water two parts warm, to be repeated every three Hours, and continu'd for four Days, by which Method the Inflammation went off. At the end of the tenth Day, looking again into her Eye, I perceiv'd the *Cataract* rise up and sink down by the Motion of the *Iris*; but it did not rise quite up to the top of the opposite to the Pupil, there being a Space of the thickness of a Shilling that remain'd transparent. She told me that sometimes she could see very well, and all of a sudden cou'd see but a little. As I found that the Cause was from the rising of the *Cataract*, I told her she would see very well in a short Time. I order'd her to wear a black Hood over her Eyes for fear too great a Light might damage the Fund of the Eye.

I WENT every fourth Day to see her, and found that the *Cataract* did not rise so high as it did at first. Twenty eight Days after the last Needling, I found her sowing a Linnen-cloth, and told her she wou'd Blind her self, if she did so. I advis'd her also not to look on any thing that bears a great Light, as Fire, Looking-glasses, or any thing White, or Scarlet Colour, for a whole twelve-month. In two Months time the *Cataract* was entirely down, and she saw very well.

This

This *Cataract* was adherent to the *Arachnoïdes* by very fine strings; the *Cryſtalline* was opake from the Curvity of its Pores; and the Fibrous Parts of the *Cryſtalline* were become more dry and tough, because it had loſt its Glutinous Parts, which kept its Pores open and extended; thoſe Fibres contracting, admitted a little quantity of the Aqueous Humour betwixt the Spaces of the Fibres, which were adherent to the *Cryſtalline*, to the *Arachnoïdes*, and all round the *Cataract* at ſmall diſtances; as well as to the anterior Part of it, and kept the *Cataract* ſuſpended in the Aqueous Humour. This Woman had three Chambers in her Eye, one betwixt the *Cornea* and *Iris*; the ſecond betwixt the *Iris* and *Arachnoïdes*; the third betwixt the Blades of the *Arachnoïdes* where the *Cryſtalline* was contain'd. The Aqueous Humour kept the third Chamber extended; or elſe as the *Cataract* grew drier by degrees the Vitreous Humour muſt have follow'd the *Cataract*, which wou'd have been perceiv'd by the Eyes growing ſmaller than ordinary; 'tis a thing impoſſible for the Parts of the Eye to remain hollow. Theſe ſorts of *Cataracts* go very eaſily down with a very ſmall preſſure of the Needle, by tearing their little Fibres. They are comparatively ſpeaking, like ripe Fruit; the leaſt touch almoſt makes them drop. There are ſome ſorts

sorts of *Cataracts* whose parts never dry, but always contain a Glutinous Substance. When they have been Couch'd they rise again and stick ; I mean those that are contained in the inside of the Blades of the *Arachnoïdes*, and the *Arachnoïdes* entire. A Year after I had Couch'd this *Cataract*, I perceiv'd in her Eye a little Speck in the *Arachnoïdes*, about the bigness of a very small Pin's-head : A Year and half after that, passing the same way, and calling to see her, she complain'd that she had a numbish Pain on the back Part of her Head, and had been with a Surgeon to be blooded, who told her he wou'd not bleed her for twenty Pound, though he cou'd give no great reason for it. Looking on her Eye, I found there were four or five little Specks in the *Arachnoïdes*, which had impair'd her Sight, and seem'd to be very nigh the *Uvea* ; this was the Reason why I thought the Opacity was in the *Arachnoïdes*. For I shall shew in the following Chapter, that there may be an Opacity in Part of the *Arachnoïdes* though the *CrySTALLINE* be Couch'd. I order'd the Woman to be Blooded, after which the Pain and Numbness of her Head went off, she cou'd see a great deal better, and the Specks appear'd to be less. These Specks were from an Inflammation in the *Arachnoïdes*, which caused a greater Distension in some
of

of their Pores than in others. And the Cause of the Inflammation, I am apt to think was her too great Application to Work.

S E C T. X.

Of a Cataract of the CrySTALLINE, and Opacity in the middle of the outward Blade of the Arachnoïdes.

ABOUT two Years since I was sent for to an Asthmatical Woman of about seventy Years of Age, who had been Blind seven Years as she told me; her Eyes were very full, the Movement of the Pupil of her right Eye was very slow, the Opacity of a dirty Yellowish Colour and smooth. The Movement of the Pupil of her left Eye, was indifferent good, the *Cataract* was of a yellowish dirty White Colour, a little curdled. She ask'd me my Opinion of her Eyes, whether they were curable; because she had been told by some Oculists, that there was a *Gutta Serena* behind the *Cataracts*. I told her there was not a *Gutta Serena* perfect, because she cou'd see a little glimmering Light; but that it wou'd not be an easy matter to Cure them. For as she had been subject to violent Pain in her Head and Eyes, and to a Cough, the *Cataracts* wou'd be apt to rise after
Cough-

Couching; she desired me however to try to Couch them. Accordingly I went to her two days after, and began with the left Eye, in which I found a great many ramping Veins on that Part of the *Conjunctiva*, which was just over the Place where I was to make my *Puncture*, and there was no going above nor below them. Having order'd her to turn her Eye towards her Nose, I pass'd my Needle through the Coats, which cut some Blood Vessels within her Eye, because I cou'd see Blood betwixt the Membranes of the *Iris*. Those Vessels on the *Conjunctiva* seem'd to form a sort of *Ganglion*, and communicated with some extended Vessels in the *Choroides*, which furnish'd that Blood which I saw extravasated betwixt the *Membranes* of the *Iris*. It came not out of the *Membranes* to mix with the Aqueous Humour, for then it would have hinder'd me seeing the point of my Needle, and have frustrated the Operation. Having got the *Cataract* down, and asking her what she could see, she told me she cou'd see any thing in the Room. I perceived however an Opacity betwixt me and my Needle, the bigness of a large Pin's-head in the Middle of the exterior Blade of the *Arachnoides*, which hinder'd me from seeing the point of my Needle. But when I moved it a little above or below it, I

could

cou'd see it very plain; from whence I
 judg'd that the Opacity was in the *Arach-*
noïdes. And it was certainly betwixt me
 and the point of my Needle; because
 keeping the point in the Middle, I
 could not see it; and moving it a little on
 one side or the other, I cou'd see it very
 clearly. The *Cataract* being sufficiently
 depres'd, and dressing the Eye; I then
 undertook her right Eye. Where having
 made the *Puncture* and pass'd the point of
 my Needle towards the *Cataract*, there
 issu'd a *Pus* into the Aqueous Humour,
 so that it was Labour in vain to work any
 longer at that Time, because the *Pus* thick-
 en'd the Aqueous Humour, and hinder'd
 me from seeing the Point of my Needle.
 She complaining of a Pain in her Eyes a-
 bout Ten o'Clock that same Night, I gave
 her two Grains of *Opium* in a Pill to com-
 pose her, without effect. About Three
 o'Clock the next Morning, she was taken
 with a violent Vomiting, which made me
 afraid that the *Cataract* would rise again by
 those violent Agitations. The Vomiting con-
 tinu'd for four and twenty Hours by Fits.
 I kept dressing her inflam'd Eyes for eight
 Days, when I found the *Cataract* of her
 Left Eye was risen again almost to the
 Top; but she cou'd still see a little, from
 the superior Part of the *Pupil*. The Cause
 of the rising of these sorts of *Cataracts*, in
 my

my Opinion, is this, that the *Arachnoides* being entire, the Contraction of the Ciliar Productions all round the Edge of the *Arachnoides*, squeezes the Sides of the Part that contains the *CrySTALLINE*, and obliges it to rise. Where there is a glutinous Part left in the *CrySTALLINE*, it sticks again sometimes to the upper Part, sometimes to the Sides. When the *Arachnoides* is cut all round to the Size of the *Pupil*, or is slit cross-ways, those Parts so divided never re-unite again.

As to *Cataracts* of the *CrySTALLINE*, which are not of a glutinous Substance, their Pores being spongy, admit a Quantity of the Aqueous Humour into them, which extend them; if therefore they rise again after couching in three Months, they fall by their own Weight. I presume that the Place where the *Cataract* is after couching, by reason of the Fatigue the Parts suffer'd by the Needle, and of the Laceration it inevitably made in some of the vitreous Humour, occasions an Inflammation on the neighbouring Parts; and the Inflammation straitning the Place where the *Cataract* is, squeezes the *Cataract* up; so as the Inflammation goes off, the *Cataract* falls down.

THE Woman's Right Eye look'd of a brighter Opacity than it did before the Needling, and had a greater Glimmering of Light. At the End of three Weeks I
needled

needled her Left Eye again, to depress the *Cataract* that was risen. I made the Puncture a little on one Side from the first, and found an Opacity of the *Arachnoïdes* before the Point of my Needle. The *Cataract* went down with a very small Depressure of the Needle: But I was quite out of Hopes of the Woman's ever seeing much, from the Opacity, and from the glutinous Part of the *Cataract*, and because her Cough rais'd the *Cataract* again. She had another Case that attended her; she had cut an incisive Tooth of the upper Jaw, and another was a cutting, which gave her so much Pain, that she said she had rather die than cut another Tooth. All these Things concurring, were a great Obstacle to the Success of the Operation. For the Opacity of the *Arachnoïdes* wou'd not have hinder'd the Sight much, if the *Cataract* had remain'd depress'd. The eighth Day I look'd into her Left Eye, and found the *Cataract* was risen half way level to the middle of the *Pupil*; which did not hinder her from seeing Things that reflect the Light, as Pewter, or any bright Colour: But as she was poor, and only came to *Hammersmith* to see a Relation, she had not time enough to wait the Success of the Operation: She went to *London*, and stay'd a Fortnight, then returning to *Abingdon* by the way of *Hammersmith*, she sent for me to examine her Eyes, when I found the

Cataract

Cataract in her Left Eye was three Parts risen. I would have needled her Eye again, but she had no Opportunity of staying in Town.

S E C T. XI.

Of a Milky Cataract, or Dissolution of the Crystalline.

ALL *Milky Cataracts* are a Dissolution of the *Crystalline* into a *Pus*; some are of a whitish, and some again of a brownish Yellow. Those that are whitish, are of a thinner Substance than the others, and for this Reason are called *Milky*. Sometimes there may be a Dissolution in Part of the *Crystalline*, and its other Parts concreted like a Stone. If the Dissolution is in the Middle of the Skins of the *Crystalline*, it will be a hard Matter to know it. In case there is no Opacity in the vitreous Humour, the Operation may succeed with Care.

WHEN the upper Segments, or all of them are dissolved, the Opacity looks smooth, not of a glittering Smoothness, but a dull deadish Colour, whereas all other Opacities carry a Brightness. The *Pupil* is very slow in Movement, sometimes dilated, at other Times contracted into a small Compass. But when there is a great Quantity of *Pus* in the Place of the *Crystalline*, the *Pupil* is al-

ways

ways more dilated than ordinary, and slow in Motion.

WHERE there is this Dissolution of the *Crystalline*, some French Oculists call it a *Bag Cataract*. It may very well be call'd a *Cystis*, because the *Arachnoïdes* is composed of two Blades, one of which passes before, and the other behind the *Crystalline*, and the outward Blade is a great deal thicker than the inward.

ABOUT three Years since I saw an old Invalid Soldier at *Chelsea-College*, about eighty three Years of Age, blind with *Cataracts*. In his Right Eye the Movement of the *Pupil* was but one Quarter; the *Cataract* seem'd to press towards the *Uvea*, and to be very smooth, of a Cream-milky Colour, without being curdled, he cou'd see a very small glimmering Light. The *Cataract* in his Left Eye was of a yellowish dusky Colour, without any Movement of the *Pupil*. I propos'd to needle his Right Eye, but dubious of the Success, because of the Nature of the *Cataract*. But having placed him in a proper Position, I began to needle his Eye, and found it was in the Dissolution of the *Crystalline* before I expected it. I knew it by the great Quantity of *Pus*, which mix'd with the aqueous Humour: Some of it came into the outward Chamber, before it had mix'd itself with that Humour, of a light Cream-colour. I had

O

not

not given above three Motions with my Needle, before all the aqueous Humour became opake ; and this Opacity hindering my seeing the Point of my Needle, I was oblig'd to draw it out, and dress'd it. The fourth Day after the Operation, he was pretty easy : But finding him, the fifth Day, with a violent Pain in his Head and Eye, I order'd him to be blooded in the Jugular Vein. The Pain continued, and there was a violent Inflammation, and swelling on the *Conjunctiva*, whereupon I order'd his Eye to be dress'd with Brandy and Water ; the *Pupil* was dilated, and a *Gutta Serena* follow'd.

I SHALL never for the future attempt to needle these sorts of Dissolutions of the *CrySTALLINE*. For when there is such a large Quantity of *Pus*, over-extending the *Cystis*, it makes an Opacity of the vitreous Humour next to the *Cataract*, when it is attended with Old Age, which is an incurable Case.

IN a middle Age, or a young Subject, where there is a half Movement in the *Iris*, and no Pain in the Head, the Operation may be attempted. After needling these sorts of Dissolutions, there may now and then be some of the hinder Segments of the *CrySTALLINE*, which are not dissolved, but are opake. It will be impossible to see it, because the *Pus* mixes with the aqueous Humour,

mour, and thickens it. In about six Weeks after the Operation, one may attempt the couching of them, for the Eye will have recover'd itself from the Fatigue. If there be a Movement in the *Pupil*, there is hope of Success, provided the Opacity lie not too deep towards the Fund of the Eye.

THESE *Cataracts*, when the *Pus* is let out, that kept the Parts extended, and the Posterior Segments of the *Crystalline* are not dissolved, but retain'd their Opacity, not finding that Matter to extend it; they are push'd nigher the *Pupil*, by part of an aqueous Humour, which comes from the vitreous Humour, to make up in part what was lost of the aqueous Humour by the Operation.

ABOUT four Years since a Boy of fourteen Years of Age, was brought to me by his Father from *Hampton* in *Middlesex*, of one Eye he was quite blind. The *Pupil* of the other was moderately dilated, with hardly any Movement. The middle of the Circumference of the *Iris* was so swell'd all round, as almost to touch the *Cornea*. The swell'd Part made the *Iris* convex round its middle; the *Crystalline* was opaque, and shrunk, and touch'd the Edge of some Part of the *Pupil*; where it did not touch, one might perceive a little Transparency the Breadth of a Hair, but the Boy could see his way with that Eye. When I came to

examine the Cause of his Blindness, I was told; he had fallen on his Head three Years before from a Tree of a considerable Height. The violent Contusion on his Head, and Concussion on the Brain, had caus'd a great Inflammation to fall on his Eyes, and the Neglect of Bleeding, and of other revulsive Medicines, of scarifying, and other proper Applications, occasion'd his Blindness. The Father asking whether I cou'd couch his Son's *Cataract*, so as to bring him to some more Sight than he had of that Eye, I gave him no Encouragement. I told him, I could easily remove the *Cataract*, but was afraid of the ill Consequences which would follow the couching, and prove very fatal to his Son.

SOME Time after meeting a Woman, who was one of his Neighbours, I enquir'd after the Boy; she told me that he was sent to *London*, that my Lady *Hallifax* had got his *Cataract* couch'd, and that he cou'd see Things a-cross the River *Thames*. About three Months after meeting the same Person, she inform'd me that he was fallen blind, stone-blind as she call'd it.

It would have been much better to have left his Eye untouch'd, than to have given him Light only for three Months, and reduc'd him for the rest of his Life to Darkness.

THESE

THESE Opacities of the *Cryſtalline* ſometimes fall a little down from the ſuperior Part of the *Pupil*, or they might have ſhrunk from the Sides of the *Pupil*, ſo as to admit a greater Quantity of Rays thro' the *Pupil*; by which means the Boy wou'd have been able to ſee better.

IN caſe the opaque *Cryſtalline* had fallen of its own accord into the Bottom of the inward Chamber, or thro' the *Pupil* into the outward Chamber of the Eye, he would have been liable to the ſame Fate, as he was from its being couch'd with a Needle. As the *Pupil* had no Movement, the Rays of Light ruſhing thro' it paſs'd to the Fund of the Eye, and caus'd a *Gutta Serena* by ſtopping the Pores of the Nerve. For nothing but ſuch a Stoppage of the Nerves can cauſe an entire Blindneſs. The Boy's Operator remov'd what wou'd have prevented his being entirely blind, and made way for Blindneſs by removing the Opacity, which hinder'd the too great Quantity of Rays from paſſing to the Fund of the Eye, and ſupply'd in part the Defect of the Movement of the *Iris*.

ABOUT three Years ſince I was deſir'd to viſit a Woman about fifty Years of Age living by St. *Anne's* Church, *Soho*, who in her Right Eye had a *Cataract* of the *Cryſtalline* of three Years Growth, that appear'd to conſiſt of large Flakes. She could

see but a very little Glimmering of Light, The Opacity in her Left Eye, was of a light blue Colour, and very smooth, and appear'd to be in the outward Segments of the *Cry-stalline* : Observing the Progress of its Growth, tho' she could then distinguish any thing close by her, I told her she would be blind of that Eye, which indeed was no more than she expected. She had been subject to a Pain in her Head and Eyes by times. Her Eyes were very small, and deep in the *Orbit*, and such are very difficult to couch. The *Puncture* must be made the Thickness of a Crown from the *Cornea*, lest, when we come to lean the Handle of the Needle toward the Temple, to push the Point forward we hurt the *Uvea*; whereas by beginning at this Distance from the *Cornea*, there is more room for turning the Needle, and it will be impossible to wound the *Uvea*, in case we go strait forward with the Point, with the Handle leaning towards the Temple. The Woman desiring me to couch her Right Eye, I began the Operation according to the Method I have mention'd. But her Eye was so low in the *Orbit*, that my Needle press'd on its *Membranes*. This oblig'd me to bend the Point of the Needle lower down than usual, with Pain to the Patient, and Trouble to myself. After I had got the Point two Parts in three as near as I cou'd guess behind the
Level

Level with the *Pupil*, and almost to the upper Part of the opaque *CrySTALLINE*, I moved it gently to try whether the *Cataract* wou'd stir; but being of a hard Texture, it was not to be moved. I therefore moved my Needle up and down to make a Solution of its Parts, and at last I found that my Needle pass'd thro' freely. But still it was impossible to make a Precipitation of the Parts so divided, for the *CrySTALLINE* was very glutinous, so that I left the rest to Nature and Time. The third Day she complain'd of a Pain of her Head and Temple, and Eye, and her Eye was very much inflam'd. This oblig'd me to bleed her in the Jugular Vein of the same Side, and to put a large Blistering Plaister betwixt her Shoulders, which diminish'd the Inflammation, and the Pain went off. The ninth Day looking into her Right Eye, I found the *Cataract* was extended, and had push'd the *Arachnoides* almost to the *Uvea*. All the Parts of the *CrySTALLINE*, which I had broke with my Needle, were swell'd to a large Extent. The *Pupil* was dilated a little beyond its usual Extent, from the Swelling of the Pieces of the *CrySTALLINE* within the *Arachnoides*, which hinder'd its natural Contraction and Dilatation: And the Ciliary Productions cou'd not contract, because the nervous Filaments of the *Arachnoides* were distended. She cou'd see a great Light, but without

distinguishing things. The Pieces of the *Crystalline* began to diminish in their bulk; the lower part of the *Cataract*, neighbouring to the place where the Puncture was made, began to clear a little from a thickish white to be of a lightish blue Opacity. At the seventh Months end the lower part of the *Cataract* began to clear a little more; so that she cou'd see to distinguish Money or any thing at a small Distance. But as some of the Flakes of the *Cataract* which were adherent to the *Arachnoïdes* lay slanting, she cou'd not see strait forward. She wou'd have had me Needle that Eye a second Time. I excused myself, being afraid of an Inflammation on a second Needling, which in all appearance would have brought a *Gutta Serena*.

THE Opacity of her left Eye began to grow thicker. A Year and half after, passing that way I found that the Pieces of the *Crystalline* were shrunk lesser than they had been. As the Opacity in her left Eye appeared to be in the outward Segments at first of a light Blue, and two Years after of a large flaky whitish Colour, as if those Segments were close together, and the *Arachnoïdes* being transparent, I cou'd perceive a distance betwixt the outward Segments of the *Crystalline* and the *Arachnoïdes*. She then ask'd me to couch the *Cataract* in her left Eye; but I desired her

her to stay a little longer, that the *Cataract* growing to a drier consistence might the more securely bear the Needle, and not break, as the other had done, with danger of loss of Sight from the swelling of the Pieces of the *Crystalline* betwixt the Blades of the *Arachnoïdes*. Those Pieces of the *Crystalline* being adherent by their proper Fibres that gave Nourishment to them, they swell'd more than others which are not adherent, because these can only be increas'd from the Aqueous Humour entring their Pores, which occasions them to fall by their weight. So that waiting a little longer till the Fibres are dry, we sometimes find the *Cataract* falls by its own weight from the Opposite of the Pupil: And the Patient recovers Sight without the Operation of the Needle.

IN some *Cataracts* the Opacity takes its rise from the inward Segments of the *Crystalline*. Upon examining the Eye one may perceive it at a great distance. By degrees the Middle Segments grow opaque, then the outward, till the Opacity is entirely over the *Crystalline*. These sorts begin with a yellowish Opacity, and continue their colour all along; the Patients are subject to a Pain of their Head and Eyes, and to a flux of Humours on their Eyes. The best Method in the Beginning of these *Cataracts*, is to make a Seton or two
 1 Fon-

Fontinells on their backs, for to draw the Humours from their Eyes. By this means the Augmentation of the Opacity is sometimes prevented; or at least the Revulsion forwards their ripening, and hinders the Opacity of the glassy Humour, which very often happens in these sorts of *Cataracts*.

ABOUT two Years since, I went with a Gentleman that was Blind to consult a Surgeon, by whom a Physician had advis'd him to be Couch'd. We first waited on the Physician, to whom I represented the Gentleman's Case, and then I desired him to look into his Eyes. He answer'd me that he did not understand the Distempers of the Eye. A little time after us the Surgeon came, who having examin'd the Eyes, said that the right had a *Cataract* which was ripe, and fit to Couch. I told the Surgeon that there was a *Gutta Serena* behind the *Cataract* which was of a greenish yellow, that the Pupil was dilated without any Movement, insomuch that the Gentleman could not see the least Glimmering of Light, and that if the *Cataract* were couch'd the Gentleman would see no more than before. The Surgeon replied that it was the *Cataract* pressing against the Ciliar Fibres which hinder'd the admission of the rays of Light to enter the Fund of the Eye. But it has sometimes happen'd that the whole Substance of the *Uvea*, the
ciliar

ciliar Fibres, the *Cryſtalline*, and part of the *Choroides* have been digeſted and came away through the *Horny-coat*, and yet the Perſons could diſtinguiſh Light, and could tell when there have been ſeveral Candles in a Room. The Gentleman having alſo a violent Inflammation in his Eyes, I urg'd that the Couching might endanger an *Hypopyon*, and the *Hypopyon* the burſting of his Eye. The Phyſician ask'd me whether I ever ſaw an Eye burſt from Needling? I anſwer'd, that though the Miſfortune had never befallen any under my Care, I believed it upon the Authority of Mr. *Woolhouſe*. Mr. *Woolhouſe*, ſaid the Doctor, was an Ignorant rascally Fellow, and did not underſtand the Diſtempers of the Eye. Now a little before, he had own'd that he did not underſtand the Eyes himſelf; how then could he be Judge of anothers Knowledge?

IN the Gentleman's left Eye there was a *Gutta Serena*, with a dilatation and immobility of the Pupil, the *Cryſtalline* looking pretty clear.

THE Surgeon told the Gentleman, that he would wait on him at his Lodgings, and order him ſomething to take off the Inflammation, for there was no couching him as long as that remain'd. But matters not ſucceeding, I was for ſcarifying his Eyes; which the Gentleman not liking, by the Conſent of the Surgeon I made him

two

two Issues on his Back, and neither did they answer the Intent. He us'd to have violent Fits of Pain in his Eyes, after one of which Fits the *Cataract* in his right Eye appeared to be crack'd across. In the left the *CrySTALLINE* began to be of a light blue, and six Months after, examining his Eye again, I found it began to turn of a greenish yellow.

Mr. *Taylor*, pag. 64. says, " Another
 " Misfortune which too frequently at-
 " tends the unhappy Patient, is, when
 " the *Cataract* is accompanied with a
 " *Gutta Serena*, perhaps of as long stand-
 " ing as the *Cataract* it self. This we
 " find, when upon depressing the *Cataract*,
 " (and there's no possibility of judging of
 " it before) and the Pupil remaining
 " clear, the Patient notwithstanding con-
 " tinues in total Darkness; this Case is
 " indeed deplorable, I should be unwilling
 " to think that there was any Part of
 " Mankind such strangers to common
 " Sense, as to imagine this to be a Fault
 " of the Surgeon ; but I my self have
 " more than once been calumniated on this
 " very Account: I can't help saying, I
 " have been unfairly dealt with by some
 " of the Gentlemen of my own Profession,
 " who have misrepresented the Case, and
 " deluded the common People, as well as
 " injured me. This was the Case of three
 " Subjects

"Subjects that I lately couch'd in *Tar-*
" *mouth*.

T H U S Mr. *Taylor*. To whom I answer, that there is nothing easier than to know when the *Cataract* is attended with a *Gutta Serena*; as in the Case of this Gentleman of whom I have been speaking. The *Gutta Serena* was before the *Cataract*, for there was no Opacity in the *Crystalline*, but what is common to Persons of his Age, which was sixty eight. The Pupil was dilated without any Movement, the Opacity of the *Crystalline* began of a light blue, and turn'd by degrees to a greenish yellow, as I said before.

N O W those Opacities of the *Crystalline* which begin with a light blue, and end with a greenishyellow, are generally attended with a *Gutta Serena*. Which may be known by the Movement of the Pupil, perfect or imperfect, as I have said before. In case a Surgeon does not see the Patient at first, he may always judge by the Pupil. There may be a *Gutta Serena* several Years before there is any Opacity of the *Crystalline*. There are *Gutta Serenæ* imperfect, which begin at the same time as the Opacities of the *Crystalline*, and come to be perfect before the *Crystalline* is entirely opaque, occasion'd from an Inflammation which destroys the *Optick Nerves*. Such Persons have always a violent Pain in their Heads and Eyes, which attends the Inflammation.

S E C T.

S E C T. XII.

Of two Glaucomas of the Crystallines of a Boy that was Born with them.

I N the Year 1727, about the Month of *May*, I saw a Boy about seven Years of Age, living in *Cockpit Alley*, who was Born with *Cataracts* in his Eyes, and a *Hippus* on each Eye. The *Cataract* in his right Eye appear'd grayish, from some of the Segments of the *Crystalline* being more crooked than others, and with this Eye he cou'd only see a Glimmering of Light. The Opacity in his left Eye was not so great all over the *Crystalline* as that of his right. One part of it appear'd to be of a concreted Substance like a Stone, the bigness of a large Pin's-head, it was almost in the Middle of the anterior Part of the *Crystalline*, with another small one by its side. The Boy could see to distinguish Colours with his left Eye, and the Movement of the Pupil was very free.

HIS Friends told me that a Surgeon was to Couch him; but ask'd my Opinion about the Matter: I answer'd that the Operation would not succeed to their desire. About a Month after the Surgeon Needled his left Eye, and couched the

con-

concreted Substance. The Opacity of the *Cryſtalline* appear'd of a lighter Blue than it was before, but the Boy could ſee no better.

The Surgeon not coming afterward to needle his Right Eye, his Friends ſent for me to do it. I did not promiſe them much Succeſs from the Operation, which was perform'd in the Month of *September*. I found that the opaque *Cryſtalline* had no Conſiſtence to bear the Needle, for it went thro' it. I moved my Needle up and down to break what little Textures there were, and left the reſt to Nature. The tenth Day after the Operation, looking into his Eye, I found the Opacity to be a great deal clearer, ſo that he could ſee a little more with that Eye than before Needling.

FIFTEEN Days after the Operation, he was carry'd into the Country. About ſix Months after, ſeeing ſome of his Relations in Town, I ask'd how the Child did, and was answer'd, that the Opacity was entirely gone off from his Right Eye, and that he could ſee to diſtinguiſh Objects when cloſe by him ; but as to his Left Eye, that he could ſee no more than before Needling.

THOUGH in moſt *Cataracts* I judge from the Movement of the *Pupil*, and the Colour of the Opacity in the *Cryſtalline*, whether the Operation will be ſucceſsful,

cessful, or that there is a *Gutta Serena* behind the *Cataract*; yet those who are born with *Cataracts*, attended with a *Hippus* on their Eye, and with a good Movement of the *Pupil*, must be excepted.

MR. Taylor's Answer to *Objection the Fourth*, p. 45. is this, " When I pass my
" Needle into the Eye, I press directly
" forward to the *CrySTALLINE* Humour, and
" endeavouring to disengage it from the
" *Ligamentum Ciliare*, I depress it to the
" Bottom of the vitreous Humour; when
" the *Pupil* seems clear to me, and such
" a Torrent of confus'd Light rushes into
" the Eye, as sometimes affrights the Pa-
" tient even more than the *Puncture* of the
" Needle."

I REMARK, that the Gentleman gives but an indifferent Account of the Anatomy of the Eye, when he says, p. 33. That the *CrySTALLINE* is inclos'd in a fine *Membrane* call'd *Aranea*; he does not say how the *Aranea* is adherent to the vitreous Humour, and to the Ciliary Fibres, nor to the Ciliary Productions vulgarly call'd *Processes*. These Things wou'd be very material, in order to understand the Nature of a *Cataract* of the *CrySTALLINE*, and the Sign of those that are couchable. He leaves his Reader as much in the dark, as he left his three Patients at *Yarmouth*.

WHEREAS

WHEREAS the Gentleman says, p. 67. That his Subject is altogether new, and elsewhere that he had the first Hint from Mr. Cheselden, that the Opacity of the *Cry-stalline* Humour is the true *Cataract*; I beg leave to say, that instead of relying on the Word of a living Author, he shou'd have consulted those accurate Authors, that have written several Years ago; such as *Maitre Jan. Antoine, Brisseau, and Heister*, who wou'd have convinc'd him, that generally speaking, the Opacity in the *Cry-stalline* is the real *Cataract*.

I SHALL now proceed to the *Queries* he proposes to us.

QUERY I. “ Whether the Reason of
 “ the Dilatation of the *Pupil* in one Eye,
 “ and not the other, may not be this: That
 “ the *Cry-stalline* Humour being render'd
 “ somewhat less transparent than former-
 “ ly, the Patient finds that the Rays of
 “ Light do not strike so clearly and forc-
 “ ibly as they us'd to do; or, in other
 “ Words, the Eye is darker than in its na-
 “ tural State: To amend which, he natu-
 “ rally, and one may almost say, involun-
 “ tarily dilates the *Pupil*; in order to re-
 “ ceive more Rays of Light, and recom-
 “ pence the Defect of the diseas'd Hu-
 “ mour.”

P

ANSWER.

ANSWER, 'Tis natural to suppose when there is an Opacity in the *CrySTALLINE* in one Eye, and the other remains transparent, that the *Pupil* dilates involuntarily to receive more Rays of Light. But when the Eyes are exposed to the Light of the Sun, if the *Pupil*, where the opaque *CrySTALLINE* is, does not contract to the same Degree, or almost to the same as that which has the transparent *CrySTALLINE*, there is some Defect in the Circular Fibres of the *Iris*, and in the *Optick Nerve*; and there will be but very little Success in the couching of it.

I HAVE seen those who have had Opacities of the *CrySTALLINE* for above twenty Years; and when exposed to the Sun, their *Pupil* has contracted to a narrow Compass; the best Method is to try them by the Light of the Sun.

THOSE whose Eyes are convex, and the *Horny-coat* small, always have a less *Pupil* than those who have the *Horny-coat* pretty large.

As to those who are born blind with Opacities of the *CrySTALLINE*, and *Hippus's* of the Balls of their Eyes, and have yet a very good Movement of the *Pupil*, altho' the *Cataract* may be couch'd, and the Parts seem to be clear behind the *Pupil*, the Movement of the *Pupil* remaining good, they never see much.

E X P E

EXPERIENCE has not shewn me the real Cause of it, as yet; but I do suppose there are some Obstructions in the *Optick Nerves*: And since the Anatomy of the Eye shews that the Movement of the *Iris* comes from the *Ophthalmick Nerves*, the *Iris* having its contracting and dilating Movement, and the Persons seeing but little, altho' the Opacity is couch'd; this must be a *Gutta Serena*, with Movement of the *Pupil*. Persons who fall blind with *Cataracts*, or *Opacities* of the *CrySTALLINE*, accompany'd with a *Gutta Serena*, have equally an Obstruction in the *Optick Nerves*, as well as in the *Ophthalmick*. These are my Sentiments as yet, till I can penetrate farther into the real Cause.

QUERY II. " Whether the *Cataract*
 " sometimes appearing at first in a white
 " Point, and afterwards spreading itself
 " like a Line drawn from a Center to a
 " Circumference, is not a Proof that 'tis a
 " transparent Body already form'd, growing
 " thick and cloudy, rather than the Be-
 " ginning of a new *Membrane* ? "

ANSWER. Considering the Structure of the *CrySTALLINE*, which is composed of several Skins one upon another like an Onion, the outward Skin may grow opaque in its Convex-Part, and each Skin having

its proper Fibres both strait and circular, as the Opacity begins in the Middle, it extends the strait Fibres sooner than the circulary; and as they are thus extended, and cannot receive a due Quantity of nourishing Juices, they must in course grow drier, which causes the Opacity to appear like a Line.

SOMETIMES these Opacities of the outward Skin appear like a Star, for the Parts growing dry, crack from the Center to the Circumference, with this Appearance, while the inward Skins remain transparent.

NOTHING but the *Crystalline* can have these Opacities resembling a Star. For such is the natural Composition of its Parts, that as its Pores are evacuated, the Parts growing dry like a Stone, must crack for want of Nourishment. Those *Cataracts* which are from a *Pellicule*, which separates from the *Arachnoïdes*, have never the Resemblance of a Star, but are always smooth like fine Linnen-Cloth, and very nigh the *Uvea*, whilst the other appear farther off.

I AGREE with the Gentleman's Sentiment, that those Opacities beginning in a Point, then spreading like a Line drawn from the Center to a Circumference, are a transparent Body already form'd, rather than the Beginning of a new *Membrane*.

QUERY

QUERY III. " Whether *Cataracts* very
 " old and discolour'd, declining in the same
 " manner, and becoming angulous and
 " uneven, is not a Proof of the same
 " Thing ? "

ANSWER. 'Tis certainly a Proof that
 those *Cataracts* are in the *CrySTALLINE* Hu-
 mour ; but they become angulous and un-
 even, from the Fibres of their Segments
 becoming crooked, and remaining tough,
 they decline for want of Nourishment, by
 that Means they are heap'd together one
 close to the other, which causes the Uneven-
 ness. 'Tis not the Age which makes the
 Colour, but the Nature of the Alteration
 of the *CrySTALLINE*, which causes the Co-
 lour.

QUERY IV. " Whether it would not
 " be worth while to observe after the
 " couching a young Subject, if the same
 " Subject is ever troubled with a second
 " *Cataract*, properly distinguishing whe-
 " ther it be the same *Cataract* risen again,
 " or not ? And this I think is best to be
 " done, by observing the Interval of Time
 " which passes between his being couch'd,
 " and the Appearance of this second *Cata-*
 " *ract*. Whether if this Observation be
 " just, and a second *Cataract* be form'd in

“ the same Eye; and in the same Sub-
 “ ject, this would not destroy my *Hypo-*
 “ *thesis* ? ”

ANSWER. As the Gentleman admits no other *Cataract* than the Opacity of the *Crystalline*, the *Crystalline* being couch'd there cannot be a second *Cataract*, unless Nature forms a second *Crystalline*, and that become opake. If the first *Cataract* rises again, it cannot be a second *Cataract*.

WHAT may form a second Opacity in the Parts that were transparent after couching, which some may take for a second *Cataract*, in my Opinion is this, that a *Cataract* of the *Crystalline* being couch'd, and the *Arachnoïdes* transparent, the *Arachnoïdes* may become opake by a slight Inflammation in the Parts, the Inflammation distends its Pores, and causes the Opacity. Sometimes there may be several Specks according to the Degree of the Inflammation, and the Degree of the Extension of its Pores. Some are three Years, others more, and some ten Years before the Parts grow very opake. These Opacities may be kept back by preventing the Inflammation, by Revulsions, as Bleeding, Blistering, and Purging, and by care taken not to look at Things that carry too bright a Light. These Opacities never can be but from Inflammations, and there cannot be
 suppos'd

suppos'd any other sort of second *Cataract*s, unless the Gentleman takes a *Glaucomatick* Opacity of the vitreous Humour for one, which wou'd be against his Opinion, who admits of no other *Cataract* than the Opacity of the *Crystalline* Humour, and wou'd destroy his Supposition on which his Argument is grounded.

QUERY V. " Whether our not being
" able to remove a *Cataract* at its first Ap-
" pearance, is not a Proof that 'tis not the
" *Crystalline* Humour? Because for all
" that we know certainly, the *Crystal-*
" *line* Humour, is equally removable at
" all Times."

ANSWER. The Unmoveableness of the *Cataract* at its first Appearance, is rather a Proof that it is the *Crystalline* which is become opake. As the *Crystalline* Humour is not to be remov'd at all Times, that which makes it removable, is its Curvity and Dryness. I have needled a *Crystalline* that was transparent, after the same Method as if I had been to couch it; but I found my Needle went thro' without being able to depress it, and the *Crystalline* that was transparent became opake by Needling. The Opacity was from the Discontinuity of the Parts, which the Needle had divided; the more I moved my
P 4 Needle

Needle the opaker it became. The other Parts of the *Cryſtalline* where the Needle had not touch'd, remain'd transparent, and adher'd to the Blades of the *Arachnoïdes*, which keep it incloſed in the vitreous Humour. This makes me judge that the *Cryſtalline* cannot be equally remov'd at all Times.

QUERY VI. "Whether or no in that Stage of the Diſeaſe, which we call a *Milky Cataract*, there may not be ſuch a Solution of Continuity of the Parts of the *Cryſtalline* Humour, as may ſuffer the Needle to paſs backwards and forwards in it, without being able to remove it out of its Place?"

ANSWER. In caſe there is a Diſſolution of the whole Subſtance of the *Cryſtalline*, the Needle will paſs through. But this is to be conſider'd, that as the Puncture is made betwixt the ciliary Productions, which are incloſed betwixt the ciliary Fibres of the *Arachnoïdes*, which marches along the outward Surface of the Vitreous Humour; ſome of thoſe being cut juſt by the Edge of the *Arachnoïdes*, there is a Communication with the inward Chamber, the Diſſolution mixes with the Aqueous Humour, by entering the inward Chamber; which may be ſeen by its thickning of

of the Aqueous, and Part of the Aqueous Humour enters into the Parts of the dissolved *Crystalline*, because of the Communication which was made. There is nothing to be done more at that time, than to dress the Eyes, and to wait till the Aqueous Humour of the Chambers of the Eye has clear'd itself. After six Weeks, if one find that there is an Opacity in the place where the Dissolution was, that is, in the hinder Blade of the *Arachnoïdes*, the Persons never will recover Sight, because by tearing the inward Blade one makes a Dissolution of the Vitreous Humour.

“ *QUERY VII.* Whether in a farther
 “ Stage of this Disease, the Parts may
 “ not again close, and stick together in
 “ such a Manner, as that the whole Body
 “ of the Humour may be at once remov'd
 “ by only pressing upon a particular Part
 “ of it?

ANSWER. As in my Answer to the sixth Query, the *Pus* is let into the Aqueous Humour, in case that the Matter be contained in a *Cystus*, sometimes the *Arachnoïdes* may be *Cystus*. When the *Pus* is let out, the *Arachnoïdes* remaining transparent after the Precipitation of the *Pus*, the Patient will see pretty well. If all the inward Segments of the *Crystalline*

line be dissolved, and the outward contain the *Pus*, and form the *Cystis*; the *Pus* being let out, this *Cystis* approaches the sides together for want of the Matter to extend it, and comes nigher to the *Pupilla*. And a second Needling in this Stage so made by the first Needling, will depress it down, which ought to be six Weeks after the first Needling. In all probability without a second Needling, it will not drop of its own accord, because there may be some little *Fibres* that keep it suspended to the *Arachnoïdes*. So by this means the Body of the Humour may be at once remov'd by pressing upon a particular Part of it.

“ *QUERY VIII.* Whether there may
 “ not be a Gradation of Colouring settled
 “ from Sir *Isaac Newton's* Theory, begin-
 “ ning at a light Blue, and ending at a
 “ greenish Yellow; whereby we might be
 “ able to determine the exact Age of a
 “ *Cataract*, as soon as we see it? And
 “ whether such a particular Colour will
 “ or will not successfully bear the Needle?

ANSWER. 'Tis a thing impossible to determine by the Colour the exact Age of a *Cataract*; for this as I have mentioned before, depends on the Nature of it: There have been *Cataracts* of forty Years maturity

maturity without ever changing Colour. The best sort of *Cataracts* always begin with a light Blue and end with a whitish Blue: One may judge by their Colour of the Success. Those that are of a greenish Yellow, or of a Yellow, I have never found to succeed by the Needle. Those that begin with a light Blue, and end with a greenish Yellow, always have a *Gutta Serena*, with an immobility of the Pupil. The yellowish ones have generally an Opacity of the Vitreous Humour behind them. All Opacities of the *Crystalline* do not begin with a light Blue; more begin with a dirty Yellow than with any other Colour; they appear at first as if they were in the Fund of the Eye, so augment by degrees till all the *Crystalline* becomes opake, with Movement in the Pupil; there can be but very little success by the Needle. And in case the *Crystalline* be couch'd while there is an Opacity in the Vitreous Humour, it will be but of very little use.

“ *QUERY IX.* Whether 'tis not possible to invent a *Speculum Oculi*, which
 “ may keep the Globe of the Eye without Motion, and without giving that
 “ Pain to the Patient which too frequently contributes to the bringing on
 “ of an Inflammation? I mention this,
 “ because

“ because I have seen so many Incon-
 “ veniences attend the Use of the com-
 “ mon *Speculum Oculi*, that rather than
 “ use it my self, I have chose to have no-
 “ thing to assist me, except the Pressure
 “ of the Thumb and Finger ?

A N S W E R. I see no necessity for the Use of the *Speculum Oculi* to hold the Eye steady ; for it must in course inflame the Eye, and while it is on, one is not able to inspect the Eye. Sometimes we are obliged to turn the Eye a little downward, to see whether the *Cataract* is depress'd low enough, which wou'd be very inconveniently done with the *Speculum* on the Eye. Besides that it presses the *CrySTALLINE* forward, when it is a Film *Cataract*, which has separated from the *Arachnoïdes*, and is only adherent to the ciliary Productions, and the *CrySTALLINE* is transparent ; so that we should inevitably thrust the Needle into the *CrySTALLINE*, and Blind the Patient. Over and above that, it squeezes the Aqueous Humour out too fast through the Puncture, and hinders the Success of the Operation for that time.

'Tis my Method to make the Puncture with the Needle betwixt my Fore-Finger and Thumb gaged by the Middle-Finger, the thickness of a Crown beyond the Finger. I order the Patient to turn his Eye
 toward

toward his Nose and keeping my Middle-Finger firm, I make my Puncture Streight forward: Then leaning the Handle of the Needle toward the Temple, I pass it gently forward. And thus it is impossible for the Eye to stir, after the Puncture is made, in case the Operator take heed and keep the Needle steady; then gently draw the Middle-Finger, while he pushes forward with the Fore-Finger and Thumb. 'Tis therefore my Opinion, that the *Speculum Oculi* does more harm than good?

QUERY X. "Whether a Trembling, which I have observ'd in the Aqueous Humour sometimes after couching, does not proceed from a Loss of part of that Humour in couching? And whether this Trembling is one Reason why the Rays of Light pass confus'd into the Eye?"

ANSWER. In my Opinion, what the Gentleman takes for a Trembling of the Aqueous Humour is a Trembling of the *Iris*, which happens very often after couching, and after Strokes on the Eye. Pressing too hard on the Ciliar Fibres in couching makes a great Extension of them, and a *Palsy* follows: And a Stroke on the Eye making the *Crystalline* go backward, forces the little Nervous Filaments to relax,

lax, which causes a *Hippus*, or Trembling of the *Iris*.

QUERY XI. "Whether there is room
" for the Needle to pass between the *Cry-*
" *stalline* Humour and the *Uvea*, without
" removing the former, so as to spoil the
" Eye, or cutting or lacerating the lat-
" ter?"

ANSWER. I have try'd it several Times, by making the *Puncture* within the Thickness of a Shilling from the Edge of the *Cornea*, and afterwards dissecting the Eyes after I have found the *Arachnoïdes* and *CrySTALLINE* entire: As for the *Uvea*, I could not judge so well, unless I had injected it before the Tryal. This Nicety may be pass'd over, and it may be done with Safety.

QUERY XII. "Whether, if this last
" is practicable, there is not a Possibility
" of removing a Film that may be in the
" Fore-part of the *Pupilla*, notwithstand-
" ing the Needle enters in at the Back-
" part of it?"

ANSWER. According to my Sentiments, and Answer to the *Eleventh Query*, one may pass the Needle betwixt the *Cry-*
stalline and *Uvea*, without wounding ei-
ther.

ther. But we must consider in which Part of the outward Chamber the Film lies. In case it be just at the *Pupilla*, and not very adherent to any Part of the *Cornea*, or the *Iris*, by putting the Needle carefully betwixt the *Chrystalline* and *Uvea*, it may be pass'd thro' the *Pupilla*, and lodge behind the *Uvea*.

If the Film be very adherent to the *Cornea*, or to the *Iris*, the best Way is to make an Incision thro' the lower Part of the *Cornea*, and take it out, and then there is no Danger of the *Film Cataract* rising again.

QUERY XHI. " Whether there might
 " not be a nice Experiment made, by pla-
 " cing an Eye like a Lens in the Hole of
 " a dark Chamber? I think (if I remem-
 " ber rightly) I have met with the fol-
 " lowing Account, in an Author of *Expe-*
 " *rimental Philosophy*; Stripping the Fund
 " of the Eye of its Integuments, he plac'd
 " it as abovemention'd; and holding a
 " Piece of white Paper within the Room,
 " at a small Distance from the Eye, he
 " distinctly perceived the Images of all Ob-
 " jects from without painted upon the Pa-
 " per; as they would have been upon the
 " *Retina*, if the Eye had been in its natu-
 " ral Position.

" Had

“ Had a nice Hand been there, who
 “ would have gone on the Outside, and
 “ with a Needle, as in couching, depress’d
 “ the *Crystalline* Humour, and if notwith-
 “ standing this Depression the Person
 “ within could still perceive the Images
 “ as before, it would be a certain Proof
 “ that the Eye might see, notwithstand-
 “ ing the Loss of the *Crystalline* Hu-
 “ mour.

“ THE Eye should be taken down and
 “ dissected, and by observing in what Part
 “ the *Crystalline* Humour after its Remo-
 “ val was lodg’d, we should receive a great
 “ Light into the Theory of couching, and
 “ much Satisfaction as to the Truth of this
 “ Hypothesis.

“ I ONLY mention this as it seems to
 “ me possible, without being able to deter-
 “ mine whether ’tis practicable or not.”

ANSWER. In my Answer to the *Fifth*
Query I have shewn, that it is impossible to
 remove the *Crystalline* Humour by the Nee-
 dle when it is transparent. As for the
 Gentleman’s *Hypothesis*, which maintains
 that all *Cataracts* are Opacities of the *Cry-*
stalline Humour, I agree so far with him,
 as to acknowledge that the *Cataract*, ge-
 nerally speaking, is an Opacity of the
Crystalline Humour. For where there is
 one *Film Cataract*, there are hundreds
 from

from Alteration of the *Crystalline*, of which I have given sufficient Proofs in treating of the *Cataract*.

The Operation which is called Diacope : For the Disease Diatafis of the Iris.

THE Patient must be placed in a Chair fronting the great Light; by which means the *Pupil* will contract, and you will be better able to discern the Prejudice the Exerescence has done to the Sight, in comparing it with the well Eye, and to take all the necessary Measures for this nice Chirurgical Operation before you undertake it. The Needle must be small, and very pointed and flat at the end, and the other Part round. The Patient being placed, you make the *Puncture* in the same Place, as that for the Operation of the *Cataract*, and pass the Needle forward into the Tumour, which is most commonly some fleshy Fibres of the *Muscles* of the *Iris* and *Uvea* morbify'd and spongy, and become big by the Blood extravasated into the Parts, which is not difficult to take off. When you find it gives way, you must take care that it does not fall into the outward Chamber of the Eye; if it inclines that way you must lean the Patient's Head a little backwards, and so lodge it in the inward Chamber behind the

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Iris;

Iris; and after the Operation, the Eye must be dress'd in the same Method, as that of the *Cataract* with the ordinary Defensive.

The Operation of the Synizizes.

THIS Distemper being a closing of the *Pupil*, it is quite opposite to the *Mi-driasis*, which is a dilating of the *Pupil*. The *Synizizes* is when the Hole of the *Iris*, which makes the *Pupil*, is entirely closed, and no Interval left for the Rays to pass through. The Distemper takes its Rise from a *Phthisis* of the *Pupil*, and the Part becoming raw, throws out its fibrous Hooks, and they interlacing one into the other, and that cicatrizing, keeps the Part closed as I have mention'd before. Sometimes this Distemper is complicated, that is, when the *Cornea* is adherent to the *Iris*, either by any outward Accidents, viz. a Needle or Awl going through the *Horny-coat*, and at the same time pricking the *Iris*, or from an inward Cause, viz. an Abscess of the *Iris*, or Corruption of the same, which sometimes joins itself with the *Arachnoïdes*, as well as with the *Cornea*; when these three Distempers meet all together, there is most commonly an Opacity of the *Arachnoïdes*, and in case it is opposite to the *Pupil*, there will be but little Success in the Operation; but

but if the *Cornea* is only adherent to the *Iris*, and accompany'd with a *Synixizes*, then the Operation may be attempted. Sometimes the Adherency of the *Cornea* to the *Iris* arrives from Ulcers of the former, as well as from outward Accidents, viz. an Ulcer of the *Cornea* ill dress'd, by applying unproper *Collyriums* at their Beginning, which makes the *Horny-coat* soft and flabby, and sometimes it loses its Convexity by being revers'd, and falls upon the *Iris*. In these Cases the *Cornea* appears concave outwardly; then there follows unavoidably an Adherency between the *Cornea* and *Iris*. I have mention'd the treating of the Wounds of the *Horny-coat* from outward Accidents in the treating of its Distempers. Of all the Ulcers of human Body, those of the *Cornea* ought to be the least moisten'd, and you ought to apply Absorbents made into Ointments, which will give a Tone to the *Membranes* by a moderate drying without any Acrimony: Powders are sometimes better than Ointments, viz. Coral, Ivory, Scuttle-bone dry'd, Starch, Washed Cerus, Pompholyx, Tutty, Callimeris-stone, Crabs-eyes; they are all of excellent Use in these Ulcers, either alone or mix'd with Butter, or prepar'd Hog's-Lard. But to cure radically the Wounds of the *Cornea*, and the Accidents which attend it, is Oil of Eggs; but in case the Ulcers of the *Horny-coat* are

of a long standing, then there must be something of a deterging Nature in the Ointment or Powder. I remember about fourteen Years since I cur'd an old Woman of an Ulcer in the *Horny-coat* opposite to the *Pupil*. She cou'd not bear the Light, and had been so for a Year. I put some of the Powders into her Eye, which I have mention'd in making the deterfive Ointment, *Chap. II. §. 7.* I put it but twice into the Eye, three Days distance one from the other, and she was perfectly cured.

WHEN a Patient has a *Synizizes* form'd, and there is a simple Occlusion of the *Pupil*, then there requires only the simple Operation to open and unbridle the *Pupil*, which is done by the Point of a Needle; the Operator may use what sort of Needle he thinks fit. The Patient must be placed in the same manner, as in the Operation of the *Cataract*, except that this requires a great deal more Light to discern the Point of the Needle in the Interstices of the *Iris*, and the Part where the *Pupil* is contracted and closed, with great Care not to tear the *Iris*, and only to cut or tear the Bridles which hold the Fibres of the *Iris* bound. You must take Care not to cut or wound the Edge of the *Pupil*, you must only touch those little preternatural Threads which appear whitish. After you have dilated the Hole of the *Pupil*, you withdraw
your

your Needle, by turning it round to enlarge the Hole of the *Pupil*; then draw the Needle out, and dress the Eye with the ordinary Defensive, as in the Operation of the *Cataract*; then you put the Patient to Bed, and take away both Pillow and Bolster, for they must lie flat.

If the *Synizizes* be accompany'd with a Symphizize, or Conjunction and Adhesion of the *Cornea*, you must begin by the Disunion or Separation of the *Iris* from the *Cornea*, by putting a Needle through the transparent *Cornea* towards the little *Canthus*; then you push the Needle forward to the Place where you see the *Iris* join'd to the *Cornea*.

THE Needle must be small and flat at the Point; but its other Part must be round; as soon as you have undone the Adherency, then you begin the Operation of the Opening of the *Pupil* without drawing the Needle out of the Eye, by separating the little Strings which tie and close the *Pupil*, by their contracting and interlacing in different Ways: Sometimes there is a purulent *Cataract*, which is become dry, and is adherent to the *Pupil*, which stops the Hole of the *Pupil*; then the Needle must be put through the *Conjunctiva* in the same Place as you couch for the *Cataract*; but if it is the *Arachnoides* that is become opake, and adherent to the *Pupil*, then the Opacity appears

pears grayish, and the Operation must not be attempted. There may be sometimes a *Glaucoma* of the *CrySTALLINE* behind the *Film Cataract*, then it will be a hard Matter to know it, till the *Film Cataract* is remov'd. We ought to have some Signs of Success before the Undertaking of this Operation, by restoring some Sight; the Tokens as some Authors have given us, are, Whether the Patient can distinguish the Day from the Night, or the Movement of some large Object: But if the Patient is not at all sensible of the great Light, if the *Horny-coat* is entirely flat, wither'd, and of a deadish Colour; if the *Iris* be alter'd, and its natural Colour chang'd to be yellow or green, and if this Distemper arrives from an *Hypopyon*: If the Eye be softer and lesser than the other: If the Distempers follow a *Megrim*, or Operation of the *Cataract* ill done, or from a Burn by Scalding-water or Fire, or from a violent Stroke, there is no hope of Success.

BLISTERING Plaisters on the Neck and Temples. The Bleeding in the Jugular, and the Arteriotomy in the Temples, with a very low Diet, and a profound Rest are all indispensibly necessary in this Operation.

of

*Of the Operation of the Emphyosis and
Diapyosis.*

I HAVE mention'd before in speaking of the *Cataract*, that this Distemper is a Matter or *Pus* in the inward Chamber of the Eye; when it is contain'd in a *Cystis*, then it makes a purulent *Cataract*, which sometimes covers the *Pupil* and *Concretes*, then it must be couch'd as a *Cataract*; but if the Matter be not contain'd in a *Cystis*, it makes an *Emphyema* in the inward Chamber, but then it does not cover the *Pupil*. This Matter comes from an *Abscess* of the *Choroïdes* or *Uvea*, which empties itself there. Sometimes there may be an Opacity in the *Arachnoïdes* accompanying this Matter; but that may be easily discern'd, because the *Pus* always has a yellowish Hew, and floats about; and the Opacity of the *Arachnoïdes* has its Stability. In case you find that the Matter augments, then you must let it out, or else the Eye will burst. The Operation must be made with a Lancet made *à Propos* for it, with a little Handle, the Point of which must cut no farther than the Thickness of a Crown, the cutting Part must be flat, and not exceed one Tenth of an Inch and half in Breadth. The Incision must be made on the lower Part of the Eye the
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Thickness of half a Crown from the Edge of the transparent *Cornea* through the *Sclerotic*, and according to the Direction of its Fibres, without which the Edges of the Wound will heal with great Difficulty. You must not be too hasty in healing the Wound before the Suppuration appears to be over. The first Night the Eye must be dress'd with the ordinary Defensive: The next Day, if there appears no *Pus*, you may close the Wound as soon as you can. When the Matter is all gone, you must lay the Patient flat on his Back, and put the *Horny-Case* over his Eye in the same manner, as I have mention'd after the Operation of the *Staphyloma*. The Eye must be scarify'd every Day to hinder the Regeneration of the *Pus*. Blistering and Bleeding in the Arm, and sometimes in the Foot, ought to be put in use; and you must give Opiates and Emulsions. When you find that the Wound is heal'd, you must leave off the *Horny-Case*, and dress the Eye with *Oil of Eggs* twice a Day.

You may use a hollow Needle to let out the Matter; that is, a *Canula* with a Needle in it, in the same manner as in the Operation of the *Paracentæsis*.

F I N I S.